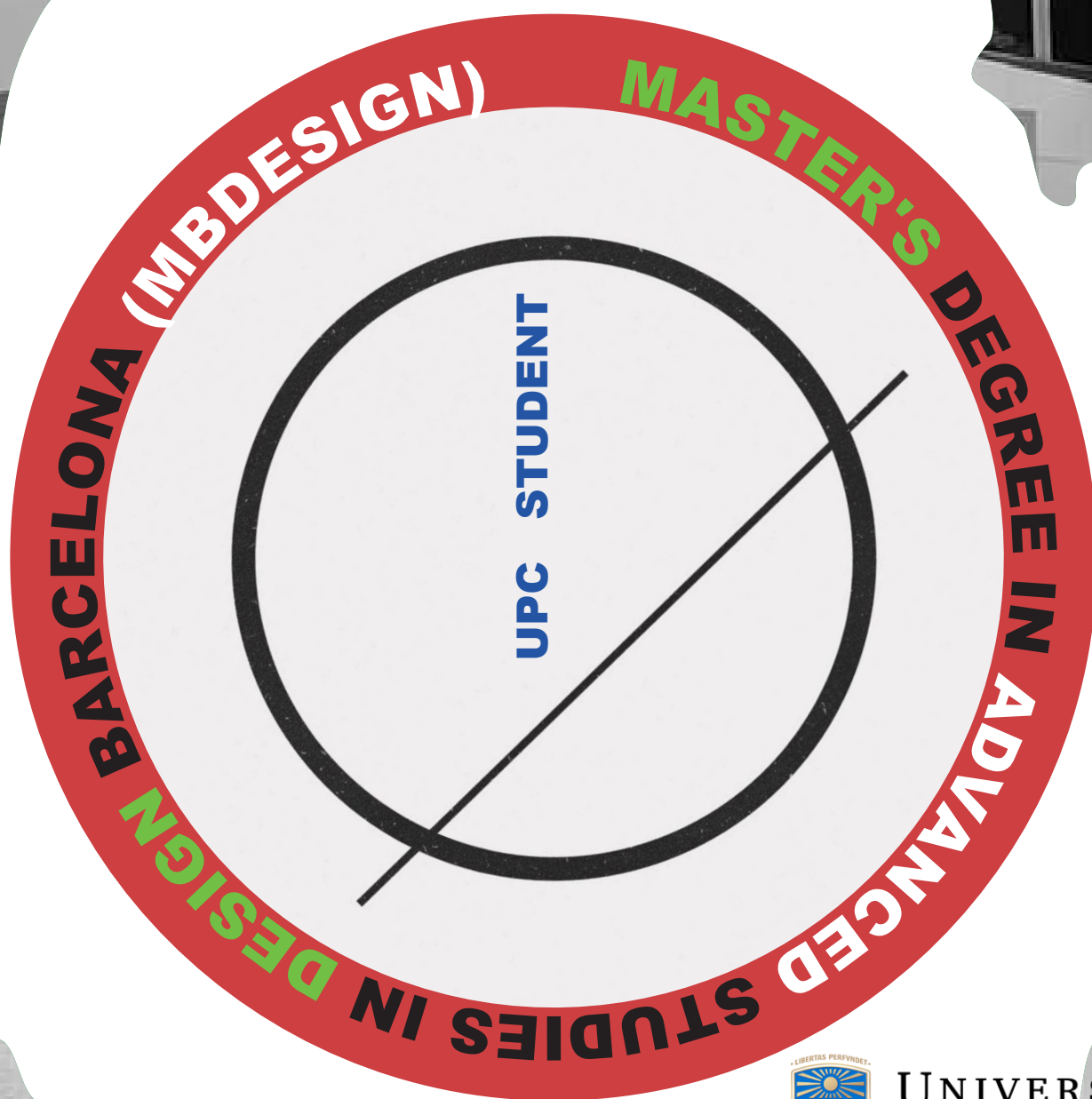




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INCREASING CHALLENGES FOR WORLD HERITAGE SITES PROTECTION AS A RESULT OF THE DEVELOPMENT OF SUSTAINABLE TOURISM

**A CASE OF THE OLD TOWN OF LIJIANG,
CHINA**



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ABSTRACT

With the growth of economy and globalization in near three decades of China, tourism has become one of the biggest business than ever before. In China, those ancient towns are one of the most popular tourism destinations. It brings negative effect in some way while the tourism industry encourages the growth of local economy and living standard. The purpose of this report is to explore the possibilities between cultural innovation and social sustainability of tourism industry in Chinese ancient towns as the Old Town of Lijiang, Yunnan Province for example. In the end, the report also provides responsive improvement for the tourism industry in Lijiang. To measure the sustainability of tourism in Lijiang, the report focuses on two aspects of social dimension and cultural dimension, employs contemporary design, which include the visible and audible system in order to convert various aspects into a relatively tangible measurement. As for the outcome of analysis, it indicates that: 1) tourism in Lijiang is unsustainable in social dimension due to the paramount pressure on the traditional life style and land use which caused by overhaul tourist population poured into Lijiang in decades years; 2) tourism in Lijiang generally has played a positive role in the preservation of local culture. The findings help decision makers understand both weaknesses and strengths of tourism better in each aspect of the tourism industry in Lijiang to make responsive strategies and policies to ensure a more sustainable future.



绪论

随着近三十年来中国经济和全球化的发展，旅游业已成为前所未有的最大产业之一。在中国，这些古老的城镇是最受欢迎的旅游目的地之一。旅游业鼓励当地经济和生活水平的提高，但在某种程度上带来负面影响。本报告的目的是探索作为中国古镇旅游业之一的云南省的丽江古城在文化创新与社会可持续性之间的新的可能性。最后，该报告还为丽江的旅游业提供了积极的改善意见。为了衡量丽江旅游业的可持续性，报告侧重于社会维度和文化维度两个方面，采用现代设计，包括视觉和听觉系统，以便将各个不可见方面转化为相对有形的衡量标准。分析结果表明：1) 丽江旅游社会维度不可持续，原因是几十年来大量游客的涌入导致丽江传统生活方式和土地利用面临着很大的压力；2) 丽江旅游业大体上看在保护当地文化方面发挥了积极作用。这些发现有助于决策者更好地了解丽江旅游业各个方面的旅游弱点和优势，并制定相应的战略和政策，以确保更加可持续的未来。



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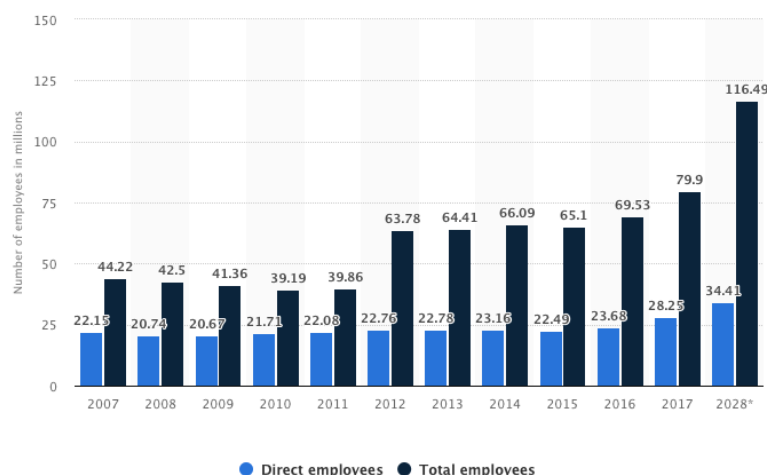
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CHAPTER 1---INTRODUCTION

As for one part of big business, tourism is a major source of income and employment for many countries. According to Edgell (2006, p. 4), global tourism provides employment for more than 222 million people all over the world, in another word, approximately one in every twelve workers. The World Travel and Tourism Council (2010) forecasts that the tourism industry is probably to continue to expand in the future as more and more people seek opportunities for leisure and recreation away from their residential place. The contribution of the tourism industry to all employment is expected to be 1 in every 11 jobs by 2020 according to the World Travel and Tourism Council.

Tourism in China shares almost the similar picture of the industry as in many other countries, particularly from the implementation of the Economic Reform and Open Policy Act in 1978. Afterwards, the tourism industry entered a new era and has developed dramatically over the past 40 years. The international tourism in China has almost increased one thousand times which beginning with the number of 124 thousand international tourists in 1978 and reaching a number of over 141.2 million tourists arrived in 2018 (Data Source: Ministry of Culture and Tourism of People's Republic of China). International tourists only account for a small part of the whole number of tourists. Domestic tourists numbered over 5.539 billion in the year of 2018 and the total revenue has been estimated to exceed 5.97 trillion RMB (about 868.1 billion U.S dollars). Besides from total revenue, tourism offers opportunities for providing employment apart from developing leisure activities, cultural awareness as well as international exchanges. In 2017, the employment directly related to the tourism industry in China was almost 28.25 million (Statista, 2017). Furthermore, tourism offers specific opportunities in deprived areas, such as the small islands, the centres of historic towns in economic decline and outlying areas, rural mountain areas and so on, some of which are crying out for development.

Figure 1.1 Number of employees in the travel and tourism industry in China from 2007 to 2028 (in millions)



A variety of factors have contributed to the spectacular growth of tourism, specially, increased leisure time, rising incomes, improvements in transport technology, lower travel costs and reduced working hours for instance. (Priestley, Edwards & Coccossis, 1996, p. 2). Among all those contributors, the rich cultural and natural resources of China have provided a main advantage in advancing prospective tourism. Consisting of 56 different ethnic groups with distinctive traditions of culture, festivals, architecture forms, foods, attires, life styles and religions, China is expected to be impacted more profoundly and continually by tourism in the future. The problem is that the economic interests benefiting from tourism are always the priority consideration, what's more, the side-effects are usually ignored or underestimated at the same time. As the result, tourism destinations are being dramatically changed by tourists and suffering those consequences, including 1) accommodating the huge tourist volume; 2) spatial expansion; 3) historic structures devastation; 4) over commercialization; 5) environment pollution; 6) reduction of original residents in the area.

Under these circumstances, how to encourage economic growth through tourism but meanwhile decreasing the negative touristic impact on the environment has become the major concern since tourism depends on local cultural and natural resources. Because the development of tomorrow relays on the decision being made today, organizing for tourism by adhering to appropriate policies, principles, and philosophies will enhance positive environmental, economic and social benefits for the future. Sustainable tourism has emerged as a response to such concern in the past thirty years. Different from unmanaged tourism which can damage heritage sites, high-profile sites usually suffer the most. Sustainable tourism minimizes the visitors' negative impact on the surrounding environment and heritage, but also produces jobs and income for local communities. The Chinese government has realized the significance of urban sustainability in creating a sustainable future, also the enormous influence of tourism on urban development. As a result, they have made efforts and taken actions to promote a healthier and permanent tourism mode in recent years, especially in the past 34 years since China joined in the Convention Concerning the Protection of the World Cultural and Natural Heritage in 1985. Thirty-four years later, it's meaningful to review the tourism picture in China to learn lessons from experience in promoting the compelling development of tourism industry.

According to different kinds of tourism in China, tourism destinations are typically identified in three broad categories:

Built environment - in particular towns, historic cities, villages and architecture heritage;

- (1) Natural landscape - lakes, mountains, beaches, forests;
- (2) Modern recreation facilities - shopping malls, amusement
- (3) parks, skyscrapers, landmark structures and museums.

This study will focus on the first category of tourism and take ancient towns as an objective. In this study, ancient towns refer to the agglomerated areas of human settlements between cities and villages, which having a history no shorter than several hundred years and a predominantly historic character. According to the incomplete statistic, there are more than thousands of ancient towns located in almost every Chinese province. The most well-known 107 ancient towns employing tourism to increase their total revenue and also improve their local economy are noted on the website named China Ancient Town.

Figure 1.2 Top 8 ancient towns in China



Table 1.1 identifies the 16 different Chinese provinces which contain those 107 towns. In addition to these towns that have employed tourism, more ancient towns are seeking the way to boost economic growth through encouraging tourism also. As one part of the most popular tourism destinations, the primitive character of ancient towns attracts tourists from the whole world. Since ancient towns are China in miniature, which burdening customs, culture and history, the research on tourism in ancient towns might benefit not only the towns themselves, but also the nation of China to preserve culture while promoting the growth of economy.

Table 1.1 Distribution of the 107 Most Famous Ancient Towns

Name of Province	Number of Ancient Towns
Zhejiang	23
Anhui	11
Yunnan	9
Jiangsu	8
Guangxi	8
Fujian	7
Chongqing	7
Guizhou	6
Sichuan	6
Guangdong	5
Hunan	5
Shanghai	4
Shanxi	3
Jiangxi	3
Inner Mongolia	1
Shandong	1
Total	107

Source: The Website of China Ancient Town. Retrieved Nov. 12th, 2009 from <http://www.sozhen.com/default/chinaprovince.html> (in Chinese)

Owing to sustainable tourism must relate today's dynamic needs of tourism to tomorrow's concern for the future, it's not easy to describe, define and measure sustainable tourism with a clear definition. Sustainable tourism is popularly interpreted in those following three perspectives (Priestley et al., 1996, p. 8). The first interpretation focuses on ecologically sustainable issues which involved in tourism. This approach places priority on the protection of ecosystems and natural resources since it has recognized environmental quality as a important factor of competitiveness. Second, sustainable tourism is more defined in the line of economic sustainability of tourism. Therefore, strategies in this view highly emphasize the investing and upgrading need in infrastructure to increase the capacity of tourists and improve services. The third approach identifies sustainable tourism as one part of a strategy for sustainable development, in which "sustainability is defined as the basis of the entire environmental/human system" (Priestley et al., 1996, p. 9). As a result, tourism policies from this perspective pay more attention to the integration and balance of environmental conservation, economic efficiency and social equity.

Taking into consideration that the superior and unique historic values of targeted ancient towns compared to other tourism destinations, this study, generally speaking, adopts the last interpretation of sustainable tourism – socially sustainable tourism, trying to explore effective ideologies to reconcile the conflicts among historic sites preservation, urban development and the combination goal of protection for tourists and local residents. Issues that most belong to the environmental domains, such as natural resource conservation, ecological tourism and environmental quality, are also covered by this study. Moreover, this study will focus on city- scale tourism instead of the regional scale. That is to say, this report will not consider the competition or cooperation among those ancient towns which developing tourism.

Because of the limited effort and time, it's impossible for the author to evaluate the current employing tourism statuses of all the 107 ancient towns, also draw a comprehensive picture of tourism in Chinese ancient towns. The author decides to only focus on the research of one representative ancient town- Lijiang Old Town in Yunnan Province, which has developed tourism for about twenty-five years, also it is one of the most popular ancient towns for tourists from home and abroad.

This report's purpose is to review the development of tourism industry in Lijiang over the past 25 years, which measuring the sustainability of the tourism industry in cultural, social, political, economic dimensions based on existing and historical data from the Statistics in China and draw a general picture of the social and economic sustainability of tourism in Lijiang. In the end, according to the weaknesses and strengths of the tourism industry in Lijiang, this report forwards suggestions for a more sustainable future. The findings are helpful for people who are interested in understanding the sustainability of tourism in Lijiang. Also, the findings and suggestions are useful for tourism policies-makers to make wiser and more comprehensive decision in the future.

Even though the actions and policies promoting the sustainability of tourism are effective in Lijiang, they might not be sufficient enough for other ancient towns to develop tourism sustainably as a result of the geographical characteristics, unique natural resources, accessibility, political environment, also the historic assets of each town. In other words, although the indicators that are used to evaluating the sustainability of tourism in Lijiang, including the suggestions and conclusions for Lijiang to develop sustainable tourism might be valuable for other similar ancient towns, other towns still should inspect their own strengths and deficiencies prudently before adopting the experience and lessons of tourism from Lijiang.

CHAPTER 2---LITERATURE REVIEW

The base of a research field is the definition of a concept. There are two distinctive angles to define sustainable tourism in the research field of this case. First, the definition emphasizes the sustainability of the sustainable tourism industry. For instance, Ahn, Lee and Shafer (2002) conclude that sustainable tourism development has to be the status of all involved parties developing harmoniously, not only achieving expected life quality but also continuing the status. Second, the definition explains sustainable tourism as the counterpart of mass tourism. Both of Tepelus (2005) and Budeanu (2005) indicate that although most of the negative impacts of tourism are caused by mass tourism, sustainable tourism can support small scale tourism to eliminate tourism-related problems. They suggest tourism organizations to monitor visitor's behaviour to protect the environment over the long term., Bohler, Haustein, Grischkat and Hunecke (2006) declare that the government should incite the mode of encouraging environment protection based on the study of the impacts of different tourism modes. All the different perspectives for well understanding sustainable tourism which mentioned in Chapter 1 belong to the first category, mainly focusing on the sustainability of sustainable tourism.

Theoretical Research of Sustainable Tourism

How to measure the sustainability of sustainable tourism is another significant study area of the tourism industry. According to the study, the evaluation methods include (1) Ecological Footprint Method; (2) a multi- index system of comprehensive evaluation method; (3) System Theory Model and others. Miller (2001, pp. 351-362) investigates a two-round Delphi's survey about the opinions on the indicators' development of 74 experts in order to measure the movement of the tourism product towards a lesser or greater sustainable position. The result of the experts' survey shows that it's necessary to establish an indicator system to evaluate sustainable tourism. However, the author also points out that the disagreement about "sustainability". Correspondingly, the indicators of measuring sustainability and the actions do not reach a common consensus neither at the same time. Miller mentions that the crucial roles of organizations and local residents in evaluating sustainable tourism in addition to the indicator system.

Kangas, Kajanus and Kurttila (2004, pp. 499-506) adopt a two-case study to measure the sustainability of a series of factors in tourism by using the A'WOT method. A'WOT is a hybrid method through combining the well-known "Strengths, Weaknesses, Opportunities and Threats" (SWOT) analysis and the Analytic Hierarchy Process (AHP). Basically, SWOT analysis is a common using tool for analyzing both the external and internal environments to do aim to attain a systematic approach and thereby, providing supports for those decision makers. Local culture has the enough potential to be a successful factor in rural tourism according to their study, such as the case study regions, Kassel in Germany and Yla-Savo in Finland. In the meantime, they also recommend that the investments which strengthen and enhance local culture instead of utilizing traditions and culture to make products in tourism business. Strengthening local culture opens up more possibilities for future sustainable development and innovations. An awareness of one's own traditions and a strong culture form a natural foundation for further innovations.

Similar with Kajanus et al. (2004), Ko (2005, pp. 431-445) also measures the sustainability of tourism through case study. Rather than adopting a method to evaluate different factors which involved in tourism, Ko attempts to develop a conceptual framework to estimate tourism sustainability with the components: identification of the dimensions, systems and indicators; gradations of sustainability; scaling of sustainability; extension of the maps over time; development of tourism sustainability assessment maps; evaluation. 'AMOEBAs of tourism sustainability indicators' (ATSI) and 'Barometer of tourism sustainability' (BTS) are introduced as devices for assessing the sustainability of tourism. The ATSI model is introduced not only to complement the BTS analysis but also to illustrate individual levels of tourism indicators' sustainability. The proposed BTS model represents the comprehensive level of tourism sustainability at a given destination, which combining natural and human indicators into an index of sustainable tourism development rather than trading one off against the other. At the end of the research, Also Ko (2005) argues that the government should encourage all involved stakeholders and parties to inform of all the information that related to the tourism industry in order to achieve sustainable tourism.

Sarayaka and Choi (2006) also establish an evaluating system to measure the sustainability of community tourism development. The system includes more than 120 sustainability indicators, involving social, political, technical, economic and cultural aspects. Those sustainable tourism indicators serve as a starting-point for devising a set of indicators at the regional and local level. Relying on the distinctive characteristics of communities, stakeholder groups shall employ a number of sustainable indicators, including industry experts, residents of the host community, policy-makers, government planners and non-governmental organizations (Choi & Sarayaka, 2006, p. 1274).

On the basis of the Multi-index system of the comprehensive evaluation method mentioned before, the Ecological Footprint Methodology is also adopted to estimate tourism sustainability. The ecological footprint is to measure the human demand on ecosystems of the Earth. It compares human demand with ecological capacity to regenerate of the planet Earth. It represents the amount of biologically productive sea area and land which needed to regenerate the resources that a human population consumes and also to absorb and render the corresponding waste into harmless. It is possible to estimate how much of the Earth it would take to support humanity if everyone lived a given lifestyle by using this assessment. Once the Ecological Footprint Method is applied to the tourism industry, scholars would compare tourist demands with the ecological capacity of tourism destination to estimate the appropriate population of tourist for a particular place. That is to say, according to the author's understanding, the Ecological Footprint Methodology is a good approach to calculate the maximum population for a community based on the amount and quantity of local ecological resources.

Gossling, Horstmeier, Hansson and Saggel (2002, pp. 199-211) develop the framework of the Ecological Footprint Methodology which applied to tourism sustainability assessments. Based on the case study of the Seychelles Islands, they discuss the shortcomings and benefits of such method. Nevertheless, the most remarkable advantage of the Ecological Footprint Methodology is its capability which provides researchers with a solid base to determine carrying capacity. Meanwhile, the difficulty to estimate enough statistical data is the biggest obstacle for applying this method to encourage tourism sustainability.

Sustainable Tourism Practice

The issue of sustainability in tourism has been a concern of many researchers and scholars in examining the expansion of tourism. Abeyratne (1999, p. 37) finds that many small developing island countries are standing at the crossroads of habitat degradation and sustainable tourism through studying the tourism industry in small developing island states. It also concludes that the other big challenges for the tourism industry of developing countries lie in public administration structure, national economic strategies, environmental problems, International Tourism System Structure and over commercialization (Tosun, 2001, p. 301). Even though the theory of sustainable tourism is inspiring and attractive, the practice is much trickier. Tosun (2001) forwards that the encouragement and assistance from developed countries and international organizations are necessary and valuable for developing countries to implement and develop sustainable tourism as well.

The existing status quo of the World Heritage Sites also draws much attention. Grainger (2003, p. 292) examines the development of tourism in the Saint Katherine Protectorate, Southern Sinai. The result states that tourism there produced lots of pressure on the mountain ecosystem and six tribes of indigenous residents. Grainger (2003) has recommended formulating a comprehensive program to protect cultural heritage and the natural so that to encourage sustainable tourism. In the meantime, local residents shall be encouraged to participate in not only the planning but also the constructing process to promote sustainable development. Briassoulis (2002) and Aguilo, Alegre and Sard (2005) propose a similar conclusion with Grainger (2003), which emphasizing the importance of a comprehensive program to stimulate sustainable tourism. Aguilo et al. (2005) complete a study of tourism development in Malieli Islands. It summarizes that all resources should be used and developed under careful supervision with comprehensive and specific planning. Only in this way, tourism is more likely to be benefit the community and sustainable in the long run. Young (2006, p. 169) investigates the exiting status quo of tourism in the Great Smoky Mountains National Park, United States. Young (2006) concludes that the decision to encourage tourism that forcing local residents to relocate outside the Great Smoky Mountains essentially not only destroys the life of indigenous residents, but also deteriorates the visionary attractiveness, which proved to be unsustainable. Alonso, Laurance and Lee (2006, pp. 454-470) point out that the importance of the cooperation and participation of both tourists and local government to not only protect the richness of resources, but promote sustainable development in the tourism industry as well through a case study in Gabon. Cabanban and Teh (2007, pp. 999-1008) examine a case study in southern Pulau Banggi of the tourism industry. It concludes that the biggest obstacles and challenges of sustainable tourism are the deficiency of sanitation facilities and water resources.

Peeters, Gossling and Ceron (2005, pp. 417-434) analyze that the eco-efficiency of the tourism industry in France, the U.S., Seychelles and Holland. The result states that the tourism industry is not more environmentally friendly than any other industries through comparing a great quantity of carbon dioxide emission of per unit of economic earnings. The sustainability of tourism mostly depends on the factors of traffic modes and travel distance. Gossling et al. (2005) affirm that referring to the trip ending in two days, jaunting in one particular tourism destination are more sustainable than excursion, which generally means that the trip lasting more than two days in one tourism spot.

Consensuses of Sustainable Tourism

Through reviewing literature of sustainable tourism, there are several consensuses on sustainable tourism that have been reached. Firstly, sustainable tourism is emphasized and researched at priority sites while tourism occurs in rural, urban and natural areas, including small islands, coastal areas, waterfronts and urban areas with a highly historical character emphasis. About three-fourths of those sites are environmentally sensitive to the impact of tourism, which emphasizes the environmentally sustainable attribute of sustainable tourism. For instance, seven of the twelve papers in the book "Sustainable Tourism, European Experiences" discuss tourism and environmental degradation. It is understandable because compared to the culture, economy or society, the impact of tourism on the environment is more easily detected and noticed.

Secondly, most of the scholars agree with the importance of a comprehensive plan for tourism sustainability. Burr (1995, p. 14) recommends that attempting to achieve sustainable tourism development, it should be considered as one part of a planning process that integrates tourism with other development initiatives of economy. Sancho and Burns (2003) did the case study of sustainable tourism in Cuellar, Spain and also measured the effects of tourism planning. The research indicates a positive role of planning in both encouraging democratic development and promoting sustainable tourism.

Thirdly, community stakeholders should plan and manage the sustainable tourism development. Since they play a positive role in protecting the sense of their own community, which basically is helpful to promote sustainable development. The cooperation and participation of local residents, various organizations and the government are encouraged and advocated by researchers and scholars as well. That is to say, active community involvement and community self-determination are essential elements of sustainable tourism (Choi & Sarayaka, 2006). Particularly, local governments should solicit the direct and broad participation of their residents, which can not only influence decision-making, but also guarantee to all stakeholders a fair distribution of benefits. Residents must have sufficient access to various communication channels such as email, the Internet, print media and mass in order to maximize community participation.

Fourthly, sustainable tourism should meet certain criteria. Because of the important role that tourism development plays in economic, in environmental protection and in social development, Cronin (1990) recommends that tourism should follow ethical principles that respect the host area and environment, culture, the economy, the indigenous behavior and traditional way of life, the political patterns and the local leadership. In fact, many other researchers hold similar perspectives. The most popular indices and criteria forwarded by researchers cover local culture, environmental carrying capacity, indigenous way of life, the number of tourist population, the number of local residents and the equality of tourism (fair distribution of costs and benefits among host people and tourism promoters) when applying the multi-index system of comprehensive evaluation method to tourism.

Fifthly, the main methodology of sustainable tourism research is case-based, there are no identical standards/values to evaluate the sustainability of tourism yet. Because the tourism industry generally relies on the cultural resources of each tourism destination or the unique natural, it is difficult for researchers to determine fixed values towards diverse indices. The tourism industry is mostly determined by what stakeholders want it to be as well in addition to the specific feature of each tourism site. Sustainable tourism studies usually adopt a pragmatic research method which following the above criteria since either the social contexts or the natural resources of each destination are similar or the same. It can help rural areas and communities reach their sustainable objectives by a review of cases where the sustainable development of tourism seemingly is being achieved.

CHAPTER 3---METHODOLOGY

Study Objective: Lijiang, Yunnan Province

The case-study of Lijiang is an ancient town and a tourist destination as well, famous for its city plan layout, historic buildings and its natural beauty. As a matter of fact, it faced the problems such as indigenous culture degradation because of the dramatical popularity with mass tourism in the past 25 years. However, the government took actions in time and has already made some progress recently to keep within limits the cultural degradation. For that reason, it deserves attention and discussion.

There are three main reasons to select Lijiang as the study objective. Firstly, Lijiang is one of the earliest batches of ancient towns that employed tourism in China. As a city that has been developing tourism for almost 30 years, it's meaningful to review the development in Lijiang so that to summarize its experiences and lessons learned, which might benefit other ancient towns that attempting to seek sustainable tourism in the future. Secondly, Lijiang has a great reputation for its way of life and traditional culture. Since it initially started to develop tourism in the beginning of the 1980s, it attracts a large number of tourist populations. It is meaningful to discover the impact of enormous tourist population on Lijiang. Thirdly, nominated as “Historic and Cultural City” by the Central Government of China in 1982 and “World Heritage Site” by UNESCO in 1997, Lijiang has received great attention from all levels of governments, therefore, it effectively represents the nation-oriented tourism development's characteristics in China.

Clarification for the meaning of Lijiang

In fact, the word “Lijiang” has two meanings. It may mean “Lijiang Naxi Autonomous City” (Figure 3.1). It may refer to “the Ancient Town of Lijiang” (Figure 3.2) as well, which is generally called Dayan Ancient Town or Dayan Town. In this report, “Lijiang” always refers to “the Ancient Town of Lijiang” unless there is a specific explanation.

Figure 3.1 Location of Lijiang Naxi Autonomous City

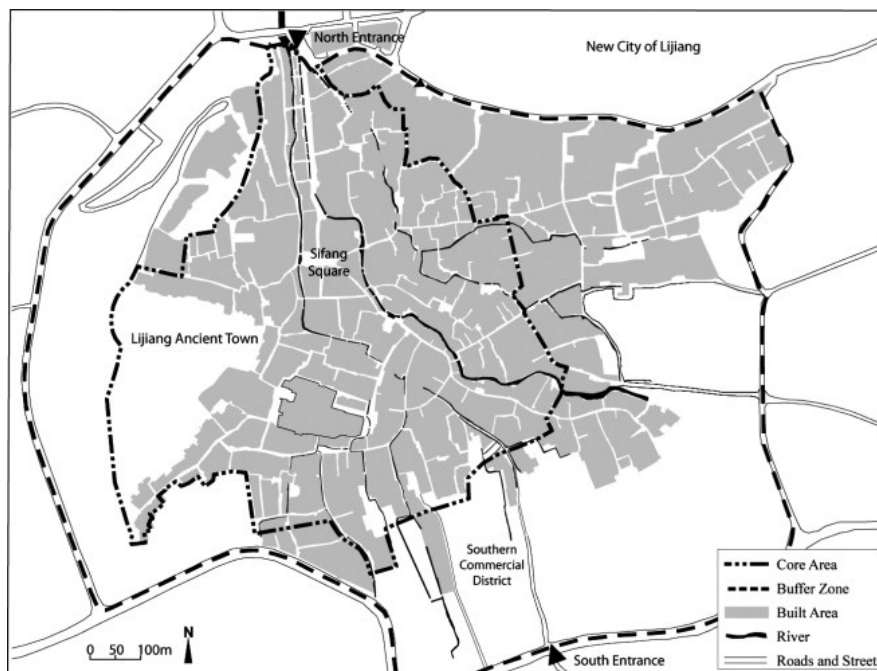


How to measure the sustainability of Tourism in Lijiang

Adopting the term of sustainability simply is not sufficient enough in ensuring it to become a reality. There is a long-since accepted need for continual monitoring to make sure a so-called 'sustainable' program is achieved. There are two popular approaches for measuring the tourism's sustainability, the Ecological Footprint Methodology and the Multi-Indicators System as the Literature Review that mentioned in Chapter Two. The author has applied the Multi-Indicators system as a basic tool to analyze the tourism development in Lijiang since considering the focus of this study, which emphasizes social and cultural sustainability.

Although Walker, Stoeckl, Roberts and Mayocchi (2004) recommend that one cannot measure sustainability through indicators, indicators do offer an indication of change and means for monitoring progress towards sustainability and help in determining the responsive behavior and actions the other way round. In this case, the indicators are categorized as cultural dimension, social dimension, political dimensions and economic dimension with quantitative and qualitative analyses (Table 3.1, Table 3.2, Table 3.3).

Figure 3.2 Ancient Town of Lijiang



Source: Redrawn from Lijiang County Government 1992

Table 3.1 Indicators for Social Dimension

Key Themes [Ⓐ]	Indicators [Ⓐ]	Analysis Approach [Ⓐ]	
		Quantitative [Ⓐ]	Qualitative [Ⓐ]
Host Population [Ⓐ]	Residential Population [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Indigenous Population [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Immigrated Population [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Racial Composition [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
Land Use [Ⓐ]	Number of Stores [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Business Categories [Ⓐ]	Ⓐ [Ⓐ]	Ⓐ [Ⓐ]
	Land Use Change [Ⓐ]	X [Ⓐ]	X [Ⓐ]
	Stores' Ownership Change [Ⓐ]	X [Ⓐ]	X [Ⓐ]
	Way of Life [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Racial Composition of Store Operators [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
Tourists [Ⓐ]	Tourist Population [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Land Use Density [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Tourist Satisfaction [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
Physical Environment [Ⓐ]	Building Dimension (height, size) [Ⓐ]	X [Ⓐ]	Ⓐ [Ⓐ]
	Building Style [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Building Preservation [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	City Plan Layout's Conservation [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]

Table 3.2 Indicators for Cultural Dimension

Key Themes [Ⓐ]	Indicators [Ⓐ]	Analysis Approach [Ⓐ]	
		Quantitative [Ⓐ]	Qualitative [Ⓐ]
Culture [Ⓐ]	Retention of Local Customs & Culture [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Shift in Level of Pride in Local Cultural Heritage [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Number of Native Language Speakers [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Type and Amount of Training Given to Local Residents and Tourism Employees [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]
	Type of Information Given to Visitors Before and After site visits [Ⓐ]	Ⓐ [Ⓐ]	X [Ⓐ]

Table 3.3 Number of Indicators Developed in This Study

Dimensions	Number of Indictors Developed
Social Dimension	17
Cultural Dimension	5

The following step is to translate tourism indicators into a measurable form once determining the indicators for measuring the sustainability of tourism development. Because it is too absolute to pass judgement on tourism development in Lijiang as sustainable or not, in this case, through assessing sustainability of individual indicators to present the level of tourism sustainability, at the same time, using a five-point scale to evaluate and compare each indicator. The five-point scale is divided into five sectors: excellent, good, medium, poor and bad. Since this scale converts different indicators into a relatively consistent measurable scale, it is useful in explaining complicated and relatively precise information.

Generally speaking, it depends on the impact of tourism on the indigenous residents whether a specific indicator falls into the excellent, good, medium, poor or bad sector, which revealed by the specific indicator. The basic theory is that the rural residents whose life were impacted by tourism and the indigenous residents in the ancient town of Lijiang share the more benefits which brought by tourism, the more likely the positive sectors (excellent and good) are accounting for indicator. On the contrary, the more benefits of the impacted rural residents or the indigenous residents in the ancient town of Lijiang deprived by the population, the more likely the indicator to be described as bad or poor. The regular principle of describing an indicator by the five-point scale is translated to the following principles and standards of the poor and excellent performances of each key theme specifically once it comes to individual key themes in various dimensions (Table 3.4). The indicator is assigned as “good” if the effective actions have been implemented in recent years and the outcome is closer to the condition of excellent performance. The indicator is assigned as “bad” if an indicator verifies harmful outcomes happened and are continuing to be exacerbated during the tourism development. The indicator is described as “medium” if the outcome of an indicator indicates no apparent tendency towards either “poor” or “good” performance.

Table 3.4 The Principles of Measuring Individual Indicators by the Five-Point Scale

Key Themes	Excellent Performance	Poor Performance
Host Population	The Population of the indigenous. population keeps stable.	The proportion of the indigenous. population severely declines and no responsive actions are taken yet.
Land Use	The building uses do not change to cater to tourists' demand and the indigenous residents continue their traditional life style.	The building uses are dramatically changed to serve the tourist population and the original citizens leave out of the town, altering their way of life radically. No actions are taken to prevent the indigenous population from flowing out.
Physical Environment	Historic assets and the ancient town	Historic buildings and townscape are demolished and no
	feeling are well preserved.	responsive actions are taken yet.
Tourists	The land use density and population density in Lijiang are reasonable even counting the tourist population in, compared with other cities.	The number of tourist population exceeds the upper limit of carrying capacity of Lijiang and no responsive actions were taken yet.
Culture	The traditional culture is well preserved and the language and music are in use by not only the elder but also the younger.	The traditional culture in Lijiang is not respected and no longer in use and no culture-saving actions are taken yet.

They are converted into the following related sustainable sectors after describing the indicators by the consistent five-point scale: potentially sustainable, sustainable, potentially unsustainable, intermediate and unsustainable based on the following hypothesis. The individual indicators with “excellent” condition that related to the tourism industry is likely to be more “sustainable”, the “bad” condition is likely to be more “unsustainable” in turn. If the effective policies and actions have been implemented in recent years, the “potential sustainability” of a tourist destination might be maintained. On the other hand, the author might assign the indicator as “potentially unsustainable” if adverse outcomes and reactions happened during tourism development but lack of responsive strategies to solve the issues or problems (Table 3.5).

Table 3.5 Sustainability Evaluation Standards

Evaluation	Convert to Sustainability
Excellent	Sustainable
Good	Potentially Sustainable
Medium	Intermediate
Poor	Potentially Unsustainable
Bad	Unsustainable

CHAPTER 4---INTRODUCE OF LIJIANG CITY AND TOURISM IN LIJIANG

Introduce of Lijiang City

The Lijiang Naxi Autonomous City (hereinafter, Lijiang City) is located in the northwest corner of Yunnan province, southwest of China (Figure 4.1). Mountainous terrain covers seventy percent of land area and flat plains occupy only five percent of the it. Lijiang City is almost six hundred kilometers away from the provincial capital Kunming. As a result, it has derived comparatively little benefit from economic growth from central and coastal China. In history, Lijiang City is the converging place with a multiple of minority cultures, such as Tibetan culture, Ba-Shu culture, Naxi culture and so on. The most major population of Lijiang City are Naxi people, an indigenous ethnic minority group with the right of self-government (Figure 4.2). Lijiang is famous for not only its advantaged tourism resources, but also its multi-transculturation led by the Dongba culture for more than a thousand years owing to the unique traditional culture and geographical environment. This culture covers lection, hieroglyph, sacrifice custom, dancing art and so on. Naxi ancient music in Lijiang City is regarded as “Living Fossil” of music for instance.

Figure 4.1 Location of Lijiang

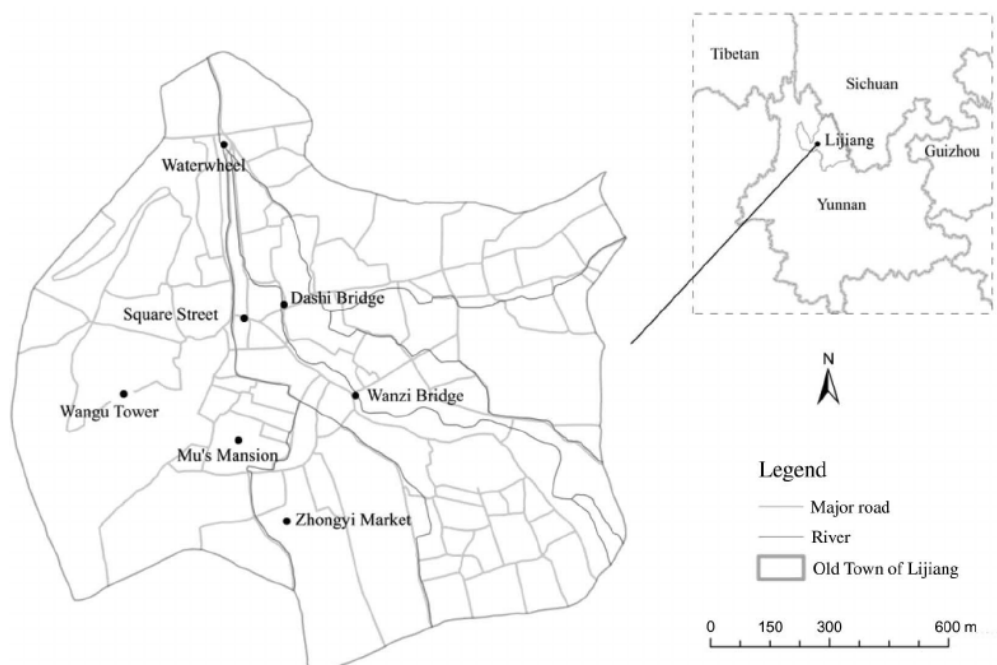


Figure 4.2 Dancers of Naxi in Lijiang



Lijiang has three World Cultural Heritages. Its rich tourism resources can be summarized into “an ancient city, two mountains, a lake, a river and a unique type of custom and culture”. “Two mountains” mean Laojun Mountain and Jade Dragon Snow Mountain. Laojun Mountain (see Figure 4.3) is the core scenic zone with the area of 842.64 square kilometers in total, which is formed by three parallel rivers. There are flourishing virgin woods together with a abundant ecological community and the unique “Danxia Landform” as well in the zone. Jade Dragon Snow Mountain (see Figure 4.4) is also a famous provincial natural reserve and a national scenic zone as well, which covering an area of 26.3 thousand hectares, containing a modern maritime glacier that located nearest the equator in the northern hemisphere with over 59 rare species and 20 well-protected virgin forests. Therefore, Jade Dragon Snow Mountain is honored as “glacier museum” and “species treasury”.

Figure 4.3 Laojun Mountain



Figure 4.4 Jade Dragon Snow Mountain



The first component of the tourism resources is the Lijiang ancient town (see Figure 4.5 and Figure 4.6). Lijiang was built in the late period of Song Dynasty in the late 13th Century, which having a history of more than eight hundred years. The city is located in the Yunnan-Guizhou Plateau with an altitude over 2400 meters. The whole area of the city is 3.8 square kilometers. Lijiang has already been an important commercial city from ancient times to the present. It was honored as one of the state-list famous cultural and historical cities in China in 1986. As the only Chinese ancient town without wall surrounding the urban area, Lijiang entered the directory of world cultural heritage on December 4, 1997.

Figure 4.5 Townscape View of Lijiang



Figure 4.6 Bird's Eye View of Lijiang



The second component is Lugu Lake in Ninglang County (see Figure 4.7), which is one of the nine largest plateau lakes in Yunnan Province. It covers a area of 48.45 square kilometers in total and its altitude is 2685 meters above sea level. The lake's average depth is 40.3 meters with a maximum depth of 93.5 meters. Lugu Lake is tourism area and provincial natural reserve in Yunnan.

Figure 4.7 Lugu Lake



The third component is Jinsha River which passing Lijiang ancient city with the length of 651 kilometers in total (see Figure 4.8). The scenery along the river is very steep and unique like Tiger-leaping Gorge as an example. “A unique type of culture” signifies both profound and extensive Naxi Dongba Culture, including Naxi ancient music, Dongba hieroglyph, Dongba painting, religious art and architecture. As for “Custom”, it refers to the Mosuo Custom, which is the traditional wedding rite in matriarchal society of Mosuo people who live along Lugu Lake. In a word on the whole, Lijiang owns so many well-protected tourism resources, which enhance its attraction to tourists significantly.

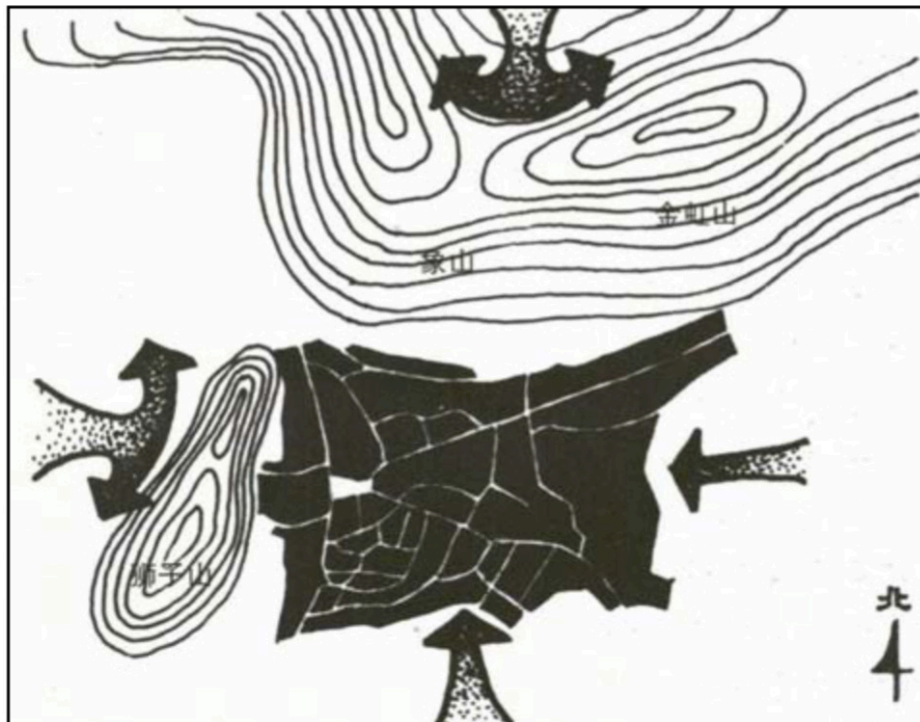
Figure 4.8 Jinsha River



The Layout Characteristics of Lijiang

Lijiang is the main part of the culture and history city, “World Culture Heritage” designated by UNESCO in 1997. Its layout and location make good use of the geographical environment. The Black Dragon Pool is a nearby natural reservoir as well. In the north of Lijiang are Jinhong Mountain and Elephant Mountain and the west is Lion Mountain (see Figure 4.9). Such layout benefits the city’s microclimate by keeping warm air from southeast to stay in the city and preventing the cold air from the northwest as well.

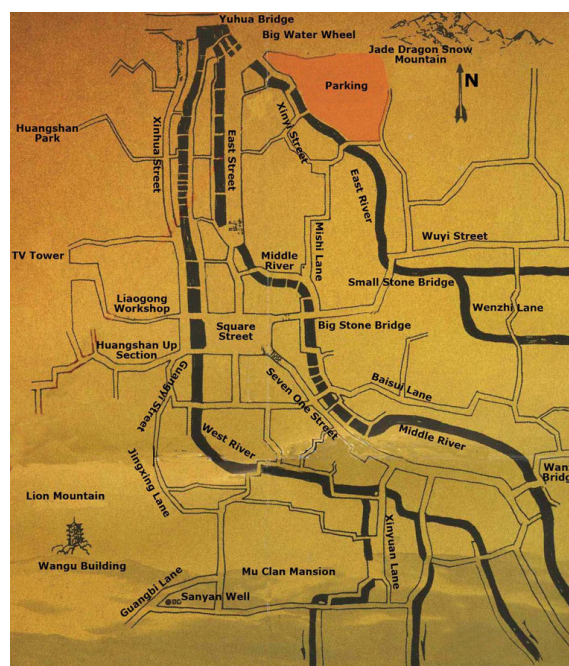
Figure 4.9 Micro-Layout of Lijiang



Source: Our Historic Cities and Historic Towns, 2007, p. 63.

The water system in the old town deserves attention as well in addition to the macro-layout. The Black Dragon Reservoir which located to the north of the city is the main water source of the city. The water is able to flow down by gravity into the city due to the higher elevation of the north reservoir than the rest of the city. Once the water arrives at Jade Dragon Bridge, it is divided into three rivers serving central, eastern and western parts of the city, each of the rivers becomes numerous smaller streams gradually that flowing along with roads, streets, walls and houses. These streams make the landscape of the old city attractive and unique (Figure 4.5 and Figure 4.10).

Figure 4.10 Waters System in Lijiang



Both of the eastern and western streams are man-made channels, which respectively founded in Yuan Dynasty and Qing Dynasty, except the central stream is a natural river. According to the investigation of the Tourism Bureau of Lijiang in 2008, in the old town of Lijiang, there are 354 bridges which accounts for the highest density of bridges in China. In a word, where there is a river, there is a bridge. The bridges adopt distinctive styles according to the different characteristics of the different water systems. For example, most bridges over the central current are solid stone arch bridges since the central stream has the largest flow. On the contrary, bridges over the western and eastern streams usually use bamboo and wood for emphasizing the elegant style and shape. The bridges which are not only fancy and elegant but functional enough are another element that contributing largely to the space diversity of the old town.

The city texture of Lijiang is compact, dense and concentrated. In the old town area, most of the houses were constructed during the Ming Dynasty and Qing Dynasty with a history over hundreds of years. The layouts are full of diversity and flexibility since the city pattern and houses were formed over a long period. Markets, houses, waters, and streets are interdependent but organized very well so that form an incredibly comprehensive system, which makes the entire city co-exist with nature harmoniously. The typical residential buildings are bamboo, bricks and two stories structure with an inner courtyard. A significant number of such buildings which connecting with each other form a flexible, compact and small-scaled city texture.

Tourism Development in Lijiang

The economic activity of the town was traditionally based on wholesale trade, agriculture and manufacturing, but it has changed dramatically to the visitor industry over the past 30 years it, which involving the service sectors and tourist. Nowadays tourism is regarded as the major export industry of the town. Despite the limited production due to the scarcity of water which is largely consumed by tourism and the employment losses to other activities, agriculture still survives. The activities of economy in Lijiang can be grouped into three Sectors. In order of importance, there are tourism, retail trade, and culture-related industry. Even though tourism is the major industry of the ancient town, over the last 15 years, the excessive dependence on tourism has made the economy of Lijiang vulnerable to not only the regional competition for tourism, but also the fluctuations in the world tourist industry.

Lijiang grew extremely slow before the year of 1980 with less new buildings constructed in the old town of Lijiang. The old town's first phase of tourism development dated from the 1980s. From the beginning of the 1980s, some experts and scholars in Yunnan Province started to give great concern of Dali, Kunming and other old cities, beginning the research of local culture, advocating the protection of these old culture and cities in Yunnan Province. As one of the old cities, Lijiang entered people's vision in that period of time. Several years later, the government proposed to develop tourism in Lijiang and established the "tourism first" development strategy in order to promote social and economic progress in the year of 1985. The central government of China approved to open Lijiang as a tourism destination to the world after five years later. The old town saw new building constructions and stepped forward to a different future from that time. The contemporary new buildings expanded into the outskirts of the old town area gradually, part of which functioned as factories in order to accommodate more tourists and promote growth of economy. The buildings resulted in a disharmonious city-scape and even took away from the attractiveness of Lijiang since the factory buildings were large with different styles and colors, which compared with the majority of buildings in the old town.

Lijiang received admission from the central government of China to construct an airport in 1992. The state government designated Jade Dragon Snow Mountain as one of the first group of tourist vacation spot at the state-level in the same year. The airport has been in service since 1995. Nowadays, it has 2 terminals which consuming an area of 120 hectares and serves around 7.5 million passengers per year. There are 50 navigation cities in Lijiang Sanyi International Airport, including 47 domestically operated cities in China and 3 international and regional navigation cities. The transportation had been a significant obstacle that constraining the economic growth of Yunnan Province for a long time because of the complex topography. As a result, the government spent amount of considerable money and made a lot of efforts on transportation improvements. The airport was one of these actions.

One of the landmarks in the process of developing tourism in Lijiang was the Tourism Planning Conference in the Northwest Part of Yunnan Province in 1994. The local government of Lijiang declared its intent to apply for the "World Culture Heritage" which designation by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Lijiang took a series of actions preparing for the success of the application from that time on. The actions included preserving the ecosystem of Lijiang District, speeding up the infrastructure construction and tearing down the factory buildings in the outskirt of the old town area gradually, which were detrimental to both the ecosystem and the vision of Lijiang. The contemporary Premier Rongji Zhu visited Lijiang several months later. He pointed out that "developing tourism is important to the cultural preservation and the economic growth of Lijiang", which advanced the tourism industry and enhanced the awareness of residents in Lijiang.

Unfortunately, a catastrophic earthquake with the magnitude 7.0 occurred in Lijiang on Feb. 3rd, 1996 while everybody has confidence in the bright future of Lijiang in 1995. fourteen thousand people were injured and two hundred died in the earthquake. The earthquake caused major damage to numerous infrastructures, community facilities, reception facilities and other settlements in the region. Many buildings were destroyed or significantly damaged. The damaged high-rise buildings in the area were torn down and reconstructed as traditional single-family residences in the aftermath. With the assistance of earthquake reconstruction from the World Bank and the provincial government, many bridges, traditional streets and canals have been restored, which played a major role in the efforts of Lijiang to achieve designation by UNESCO as a World Heritage Site on December 4th, 1997.

In the northeastern suburb of the Golden Temple in Kunming scenic spots where about 4 kilometers from Kunming city held the Kunming World Horticulture Exposition in 1999. At that time, the beauty and diversity of the gardens in the exposition attracted considerable tourists successfully at home and abroad to Kunming. It was another opportunity for the tourism development of Lijiang. Because Lijiang is close to Kunming, many travel agencies developed some “three-or-five-day tours to the Expo” which involved Lijiang and Dali (another ancient town in Yunnan Province) as touristic destinations to encourage tourists to spend more money and more time in Yunnan Province. Since then the tourism route from Kunming to Lijiang has been very popular. Thanks to the construction of CRH (China Railway High-Speed) in recent years, the number of tourists to go to Lijiang is growing even faster than before.

The local culture received more attention gradually as well with the development of Lijiang. Dongba culture, the originally local culture with a history of more than 800 years, was designated to be the “Memory of the World Heritage” by UNESCO successfully in the year of 2003. What’s more, the three parallel rivers in the old town of Lijiang were also designated as “World Natural Heritage” by UNESCO. In 2003, Lijiang became the city with three World heritage designations together with the former designation of “World Heritage Site”, which is very rare all over the world. The original Lijiang City was divided into two counties, Ancient Town District and Jade Dragon County in the same year, which covers the old city of Lijiang.

The municipal government further clarified the comprehensive objective of tourism development in Lijiang in 2008 by building an international tourism brand in order to attract more tourists in the future. The government put forward “six transformations” to bring up to date the tourism industry at the same time, which contained 1) changing the profiting approaches from focusing on quantity to concerning high efficiency and quality; 2) transforming the dominant body of tourism from government-oriented to market-oriented; 3) transiting gradually from extensive quantity to intensive quality; 4) shifting Lijiang functionally from simply a tourist destination to a travel hub; 5) diversifying the products related with tourism, not only sightseeing products but also providing the opportunity for tourists to experience and even become involved in tourism products; 6) changing the approaches of tourism management from being dominated by the administrative methods to managing tourism by law.

Table 4.1 Summary of Tourism Development in Lijiang

Year [Ⓐ]	Events [Ⓐ]
Before 1980 [Ⓐ]	Almost no tourists in Lijiang [Ⓐ]
1982 [Ⓐ]	Designate as Historic and Cultural City by the Central Government of China [Ⓐ]
1985 [Ⓐ]	The provincial government of Yunnan Province proposed to develop tourism in Lijiang [Ⓐ]
	"Tourism First" Development Strategy is established [Ⓐ]
1990 [Ⓐ]	Lijiang is approved by Chinese Central Government as a tourism destination to open to the world [Ⓐ]
1992 [Ⓐ]	The airport of Lijiang was planned and began to implementation [Ⓐ]
1994 [Ⓐ]	First Tourism Planning Conference of Lijiang is held by Yunnan Provincial Government [Ⓐ]
	The decision of applying for "World Culture Heritage" was declared in the conference [Ⓐ]
	The contemporary Premier Rongji ^{Bongill} Zhu visited Lijiang [Ⓐ]
1995 [Ⓐ]	The airport of Lijiang began service tourists [Ⓐ]
1996 [Ⓐ]	7.0 Ms ^{Ms} earthquake happened [Ⓐ]
	Assistance from World Bank and all levels' governments in China carried the ancient town through the reconstruction and restoration [Ⓐ]
1997 [Ⓐ]	Lijiang obtained the title "World Heritage Site" in Dec 4th, 1997 from UNESCO [Ⓐ]

1999 ⁴⁰	15th World Horticulture Exposition is held in Kunming, the capital of Yunnan Province ⁴⁰
	Lijiang was one of the sub-exposition sites ⁴⁰
	The contemporary President Zeming Jiang visited Lijiang ⁴⁰
2003 ⁴⁰	Dongba culture (the mainstream culture of Lijiang) is designated as "Memory of the World Heritage" by UNESCO ⁴⁰
	The town layout, especially the water system, is recognized as "World Natural Heritage" by UNESCO ⁴⁰
2008 ⁴⁰	The local government put forward "six transformations" of the tourism industry to encourage a more sustainable manner of tourism development ⁴⁰

Source: compiled by author from the official website of Lijiang County and Lijiang, <http://www.lijiang.gov.cn/>

CHAPTER 5---ANALYSIS OF TOURISM IN LIJIANG

The author described the tourism development and landmark events which impacted the tourism industry in Lijiang with a descriptive method and in chronological order in Chapter 4. This chapter will do both a quantitative and a qualitative analysis in social, political and cultural dimensions which mentioned in Chapter 3 to describe a more vivid picture of Lijiang's tourism industry over the past thirty years.

Residential Population Analysis

During the 18 years from 2000 to 2018, the total population of residents in Lijiang increased by 17.27% over that of Yunnan Province which increased by 13.92% (see Table 5.1). The total population in Yunnan Province was 42.40 million in 2000. The total population reaches 48.30 million after 18 years. The total population of residents in Lijiang increased from 1.10 million to 1.29 million during the same period. However, Lijiang shared similar population decline/increase rates to that of the Yunnan Province before 2000.

As for a community, the total population is decided by three factors, fertility rates, migration rates and mortality rates. While the mortality rates and fertility rates of Yunnan Province and Lijiang are almost the same, we can safely conclude that the migration rate of Lijiang was much higher than that of the Yunnan Province and many immigrants moved into the ancient town over the past 18 years from the data provided in Table 5.1. As a matter of fact, the high migration rate is a good reflection of the tourism's impact on the population composition. That is to say, tourism in Lijiang has dramatically changed the population composition so that the proportion of the indigenous population was much lower in 2018 and the percentage of immigrants in the city was much higher in 2018 than in 2000. Here the Immigrants refer to individuals who moved into Lijiang after 1980 from all other areas rather than the ancient town of Lijiang and lived in Lijiang as permanent residents.

However, the conclusion above seems unbelievable if we review the percentage change in the following table (Table 5.1). The immigrant percentages in 2000 and 2018 stay relatively stable, changing only 2 percent, from 33% in 2000 to 31% in 2018 as Table 5.1 shows. What's more, the proportion of indigenous population remains almost the same as it was in 2000. What happened to the indigenous population in Lijiang over the 18 years deserves effort and attention to investigate further since indigenous population is the carrier of local customs and culture. A stable proportion of indigenous population is considered one of the important indicators to measure the sustainability of tourism.

Table 5.1 Population Change from 2000 to 2018

Place \ Year	2000	2018	Percentage Change
Lijiang City	1.10	1.29	17.27%
Indigenous Residents	0.74	0.89	20.27%
Immigrants	0.36	0.40	11.11%
Yunnan Province	42.4	48.3	13.92%
Tourists in Ancient Town	1.5	4.6	206.67%

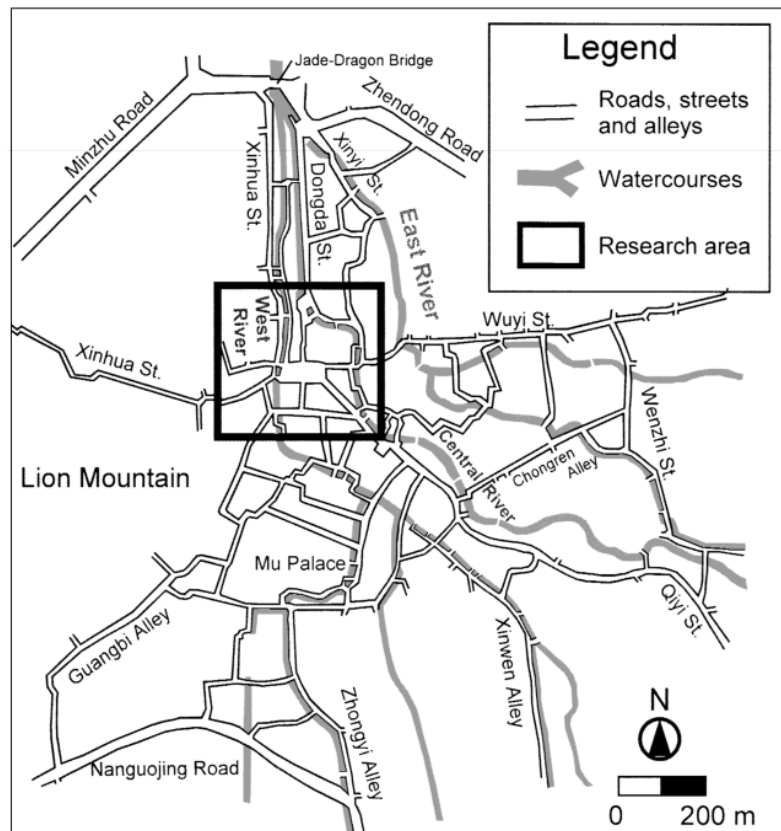
Source: all the raw data are collected and complied by the author on the basis of statistical data provided by the Bureau of Tourism, Government of Lijiang City. Retrieved Jan. 31, 2018 from the website of the Ancient Town of Lijiang.

Why does the percentage of the indigenous population increase slightly since a large migration rate normally means a big proportional change of indigenous residents? The author discovers the answer which lies in the definition of “indigenous citizens” as requested in the census by the Chinese Statistical Bureau after reviewing the data collection methods. In the census which provided by the Bureau of Tourism, Government of Lijiang City defined “Indigenous citizens” as both the immigrants which coming from the nearby small towns and villages within the boundary of Lijiang City and the residents who living in the ancient town before developing tourism. They are counted as original residents of Lijiang as long as they are indigenous residents of Lijiang City. It is not convincing enough to conclude that the slightly changing proportion of original residents indicates that most of the original population still stays in Lijiang in this case. If not, the high migration rate and slightly changing original percentage together indicate quite a few of the rural residents moved into the old city from rural surrounding of Lijiang and tourism utterly changed their life style. In fact, the following analysis about the stores in the main streets of the old town of Lijiang evidences this conclusion.

Analysis of Stores in the Main Streets of Lijiang

All the raw data which come from former scholars in this section due to the impossibility for the author to collect first-hand materials about stores in Lijiang. The data of 2002 come from Su Xiaobo & Bao Jigang (2004, p. 427-436), that in the year of 2000 come from the Japanese scholar Yamamura Takayoshi (2001, p. 48) and that of 2004 come from Zhang Tian-xin, Huang Jue and Yamamura Takayoshi (2009, p. 23-26). The research area of the study of Takayoshi (2000; 2004) covers the central tourist spot of the ancient town of Lijiang, which covers an area of more or less 230 meters (south and north) by 200 meters (west and east) (see Figure 5.1). What's more, historical data indicates that most of the structures and buildings in that area had been established before the foundation of the People's Republic of China in 1949.

Figure 5.1 Research Area



Source: from Takayoshi, 2000, p. 198.

Business Categories

The proportion of the stores open to tourists dramatically increased from 36% to 75% between the years from 1995 to 2004, while the stores which serving the local population decreased from 64.0% to 25% at the same time (Table 5.2). There were 286 shops totally in the research area in the year of 2000, but there were only 50 stores in the area before 1995. That is to say, 236 stores were opened newly after the year of 1995, which points out a dramatic building use change from residential to commercial (Figure 5.2). The number of stores in the research area increases 614% compared with 1995, which reached to 357 till the year of 2004. The land use density is increasing but the single area for each store is reducing with the development of tourism since the total area is the same.

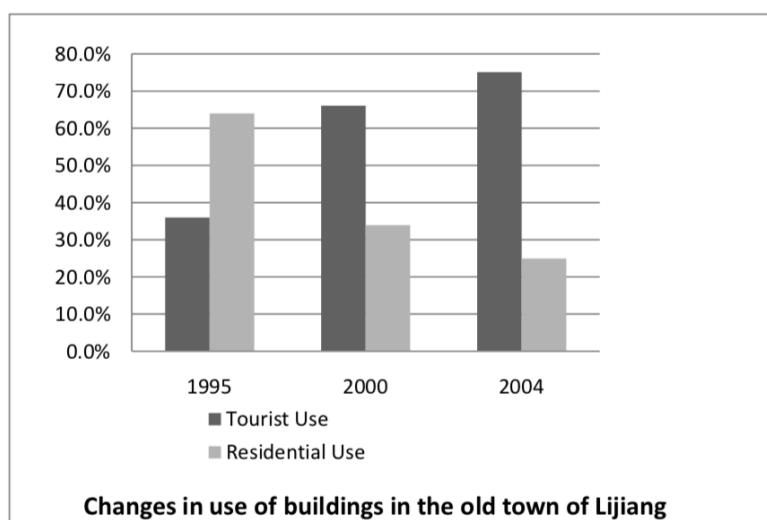
Table 5.2 Business Categories of Shops in the Research Area

	Number of Shops			Percentages			Percentage Changes		
Year	1995	2000	2004	1995	2000	2004	1995	2000	2004
Tourist Shops	18	189	268	36%	66%	75%	950%	42%	1389%
General Shop	32	97	89	64%	34%	25%	203%	-8%	178%
Total	50	286	357	100%	100%	100%	472%	25%	614%

When the replies indicated that more than half of the sales were to tourist or when the interviews to be tourist oriented and the shops were determined on the basis of practical observation on account of they sell services or commodities to tourists, the shops were classified as belonging to the tourist industry. When the replies indicated that more than half of the sales were to the local population or when the interviews to be selling service or commodities to the local population and the shops were determined on the basis of practical observation, the shops were classified as belonging to the general business category.

Source: Compiled by author from the research of Takayoshi, 2000, p. 201.

Figure 5.2 Changes in Use of Buildings in the Research Area



Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Ownership Analysis

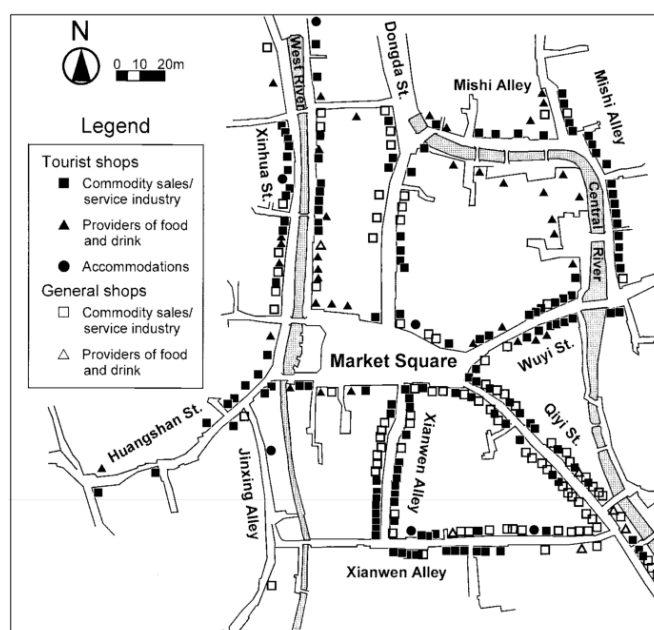
77.8 percent of the tourist shops are operated by renters but only 16.4% were owned by indigenous residents according to the data of 2000 collected by Takayoshi (Table 5.3 and Figure 5.3). The rental proportion reaches a high value of 67% as well for general shops in the same year. For that reason, probably it can be proper to view the life mode of indigenous residents in the central area of the old town as being changed when buildings that had been used previously as residences were changed and reshaped since 1995. This conclusion achieves a consensus with the former thought that the high migration rate of indigenous population in Lijiang City. Meanwhile, the major immigrants in Lijiang engage in the tourism industry and also serve tourists rather than local residents, which promotes the transformation of the old town of Lijiang from residential to commercial functions without any doubt.

Table 5.3 Ownership Categories of Shops in the Research Area

	Ownership (Number)				Ownership (Percentage)			
2000	Rented	Own	Unidentified	Total	Rented	Own	Unidentified	Total
Tourist Shops	147	31	11	189	77.8	16.4	5.8	100.0
General Shops	65	13	19	97	67.0	13.4	19.6	100.0
Total	212	44	30	286	74.1	15.4	10.5	100.0

Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000, p. 199.

Figure 5.3 Tourist Shops Ownership in the Research Area



Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Racial Composition of Store Operators

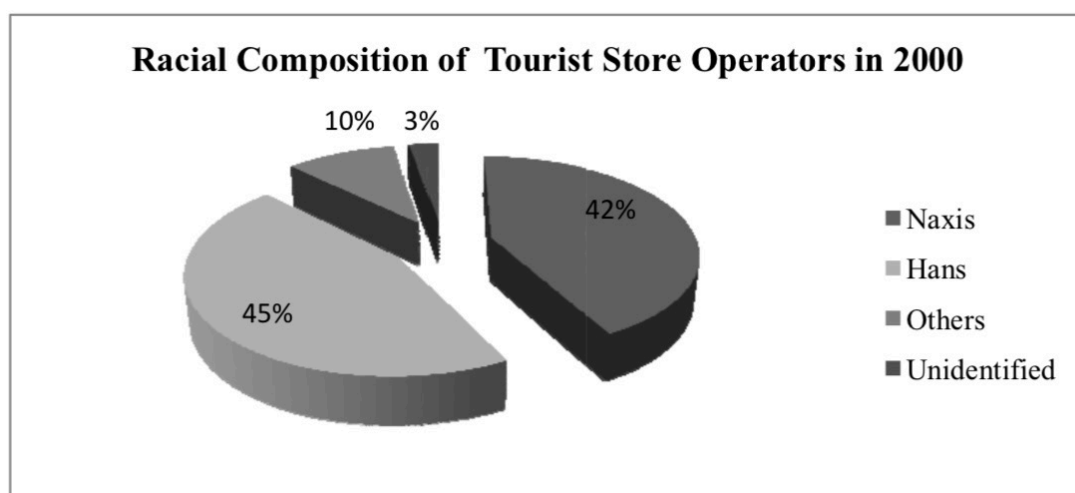
The proportion of Naxis, the natives in Lijiang, is declining gradually with more and more Hans people which is the major ethnic group of China, opening up new stores in the central tourism spot of the old town. The racial composition of the operators of the stores in the research area supports the above point of view. For all the 286 stores in 2000, only 43 percent of store operators are Naxis, which is far lower than Naxis' racial proportion of 58.7% in Lijiang City according to Takayoshi (2000, p. 226) (Table 5.4). Moreover, Hans prefer tourist shops than general shops which compared with the Naxis population. For instance, Hans operate only 29.9 percent of the general stores but 45 percent of the gift stores. Refer to the tourism business category, it was discovered that Hans operate 45.0% of the major tourist stores in total (Figure 5.4). The fact that 147 (78%) of 189 stores with tourism status quo are rented instead of owning by original residents indicates that the influx of population from outside region is a main factor that has been involved largely as a business in the locality in the increase of tourism.

Table 5.4 Racial Composition of Store Operators in the Research Area

Year	Racial Composition (Number)					Racial Composition (Percentage)				
	Naxis	Hans	Others	Unidentified	Total	Naxis	Hans	Others	Unidentified	Total
2000										
Tourist Shops	80	85	19	5	189	42.3	45.0	10.1	2.6	100.0
General Shops	44	29	6	18	97	45.4	29.9	6.2	18.6	100.0
Total	124	114	25	23	286	43.4	39.9	8.7	8.0	100.0

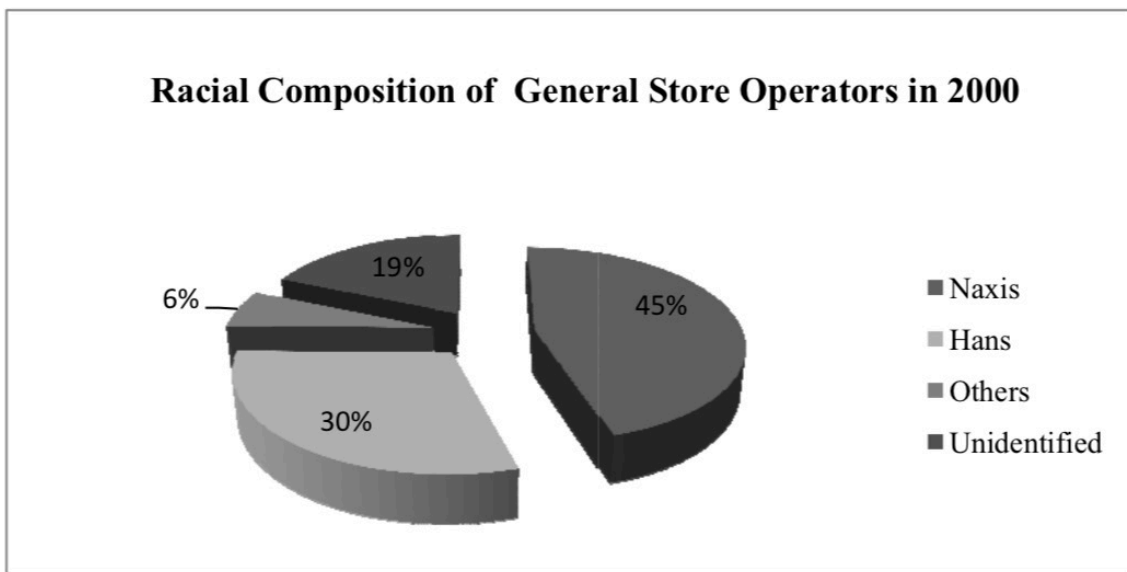
Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Figure 5.4 Racial Composition of Tourist Store Operators in the Research Area



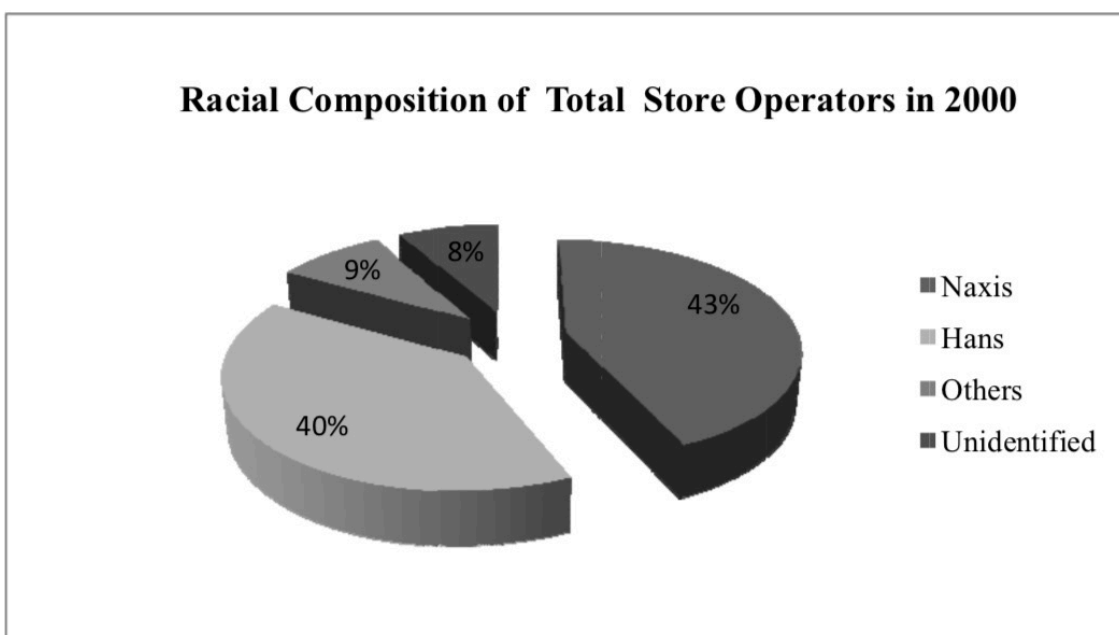
Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Figure 5.5 Racial Composition of General Store Operators in the Research Area



Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Figure 5.6 Racial Composition of Total Store Operators in the Research Area



Source: Compiled by author on the basis of raw data collected by Takayoshi in 2000.

Tourist Population Analysis

Another remarkable difference is growth in tourist population between 2000 and 2018 which shown in Table 5.1. The tourist population in Lijiang increased about 3 times from 1.5 million in 2000 to 4.6 million in 2018 over the past 18 years, which is almost 4 times that of the resident population of Lijiang in 2018 (Table 5.1). What does that mean to the old town of Lijiang with such huge tourist population? The author calculates the density of population in Lijiang and then gives the population density of other cities as a reference in order to help people to understand the impact of the tourist population on Lijiang. Take the tourist population in 2008 for instance (Table 5.5). Due to the resident population of Lijiang is 35,058 and it covers an area of 3.8 square kilometres (1.47 square miles), the resident population density of Lijiang is 9,226 persons / km² (23,847 persons / sq. mi) in 2008. According to the statistical data of National Bureau of Statistics of China in 2008, the population density of Beijing was 973 persons / km² (2,519 persons / sq. mi) at the same time. Shanghai had a population density of 2,804 persons/ km² (7,260 persons / sq. mi) in 2005. It indicated that the population density of Lijiang is much higher than many other big cities. It was notable that the major buildings in Lijiang were created originally only for residential use with two or three floors while those metropolises are comprised of skyscrapers and modern apartments. It is not exaggerated to say that the resident population of Lijiang has already reached a very high capacity consequently.

Table 5.5 Population and the Measure of Area in 2008

Place	Year	2008	The Measure of Area
Ancient Town of Lijiang	35,058		3.8

Source: all the raw data are collected by the author on the basis of statistical data which provided by the Bureau of Tourism, Government of Lijiang City.

The population density of Lijiang becomes even higher just as expected when the tourist population is added to the population of indigenous. Take the tourist population in 2018 for instance. The tourist population density per day is 3,317 persons / km² ((4,600,000/365)/3.8) if we ignore the difference of the tourist population among different seasons but distribute it to 365 days on average on the contrary. Nonetheless, the tourist population density would be considerably higher than 3,317 persons / km² (8573 persons / sq. mi) on some days and the actual population density of Lijiang is over 12,543 persons / km² (32,420 persons / sq. mi) (=3,317 persons / km² + 9226 persons / km²) as a result of the huge difference attributed to tourist population among every season in practice. According to the U.S. Census in the year of 2000, it is almost half of the population density of the islands of Manhattan, NY (66,940 persons / sq. mi). It is difficult to imagine how this ancient town accommodates such a tourist population which is 130 times larger than its resident population successfully with two-story and three-story buildings only. Lijiang is running the high risk of disability to deal with the cultural and social repercussions of the dramatic increase of tourists adequately without any doubt.

Tourism Impacts on the Built Environment of Lijiang

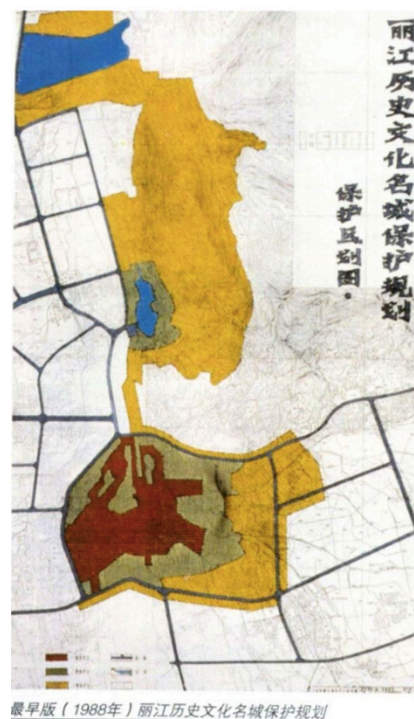
One obvious change in physical space in the old town of Lijiang is the increasing density of land use according to the analysis of stores from the year of 1995 to 2004 on the main streets of the ancient town of Lijiang, which challenges the land use capacity to another extent. Generally speaking, the tourism industry in Lijiang has benefitted from the preservation of the traditional physical space indirectly over the past 25 years on the other hand.

Many governmental sectors and institutions, especially the city planning departments, have made great efforts to preserve the unique city form of the old town of Lijiang for the reason that physical space is one of the most important resources for the tourism industry. Several planning schemes and accomplished strategies deserve attention. Firstly, the guideline of “Developing New Districts and Reserving Old Town”, which established in 1958 by the Department of City Planning in Lijiang City (Zhang, 2007, p. 28), kept new construction and modern buildings before the 1980s away from the old town of Lijiang effectively, which setting a good start in protecting physical space in the old town of Lijiang. As a positive approach for Historic Cities Protection at present, this principle has been applied and approved to many other historic towns and cities in China.

Secondly, the Historic Cities Designation assists the conservation of physical space as well. The original comprehensive plan for Lijiang City proposed to construct a new arterial street which crossing the old town of Lijiang to relieve the traffic conflicts between vehicles and pedestrians in the beginning of the 1980s (Zhang, 2007, p. 28). The physical space of the old town of Lijiang would have been changed dramatically if it implemented. “The new street just like a sharpened knife that thrusting the heart of the old town, will bring much greater traffic flow to the town and attract traffic load rather than release in the near future, the overly broad new street destroyed the coordination and harmony of the traditional town, such constructional destruction shall be immediately stopped.” as Professor Liangwen Zhu wrote in the letter and stated to the Governor of Yunnan Province in 1985. The letter drew an extensive attention and discussion to the value of the historic towns and cities. The designation system of Historic Cities was set up in China after that. The old town of Lijiang became the third cultural and historic city in Yunnan province in February, 1986 (Zhang, 2007, p. 25), its unique city pattern and physical space began to be protected officially by city scholars and city planners.

The physical space of the old town of Lijiang is supervised primarily by a Special Plan and the Preservation Plan of Cultural and Historic Cities which made by Department of Urban and Rural Planning in Yunnan Province at present (Figure 5.7). Different from other historic cities, the cultural and historic value of Lijiang lies not only on the certain buildings, but also on the integrated layout, which combines mountains, waters, housing, streets and bridges together proficiently and forms a touching and charming living space. Any demolition or change to any component of the town would result in the decline of the entire attractiveness. Consequently, conserving the integrated town is the goal of the Preservation Plan. There are three most popular aspects which adopted in the Preservation Plan, containing “Line Protection”, “Area Protection” and “Point Protection”.

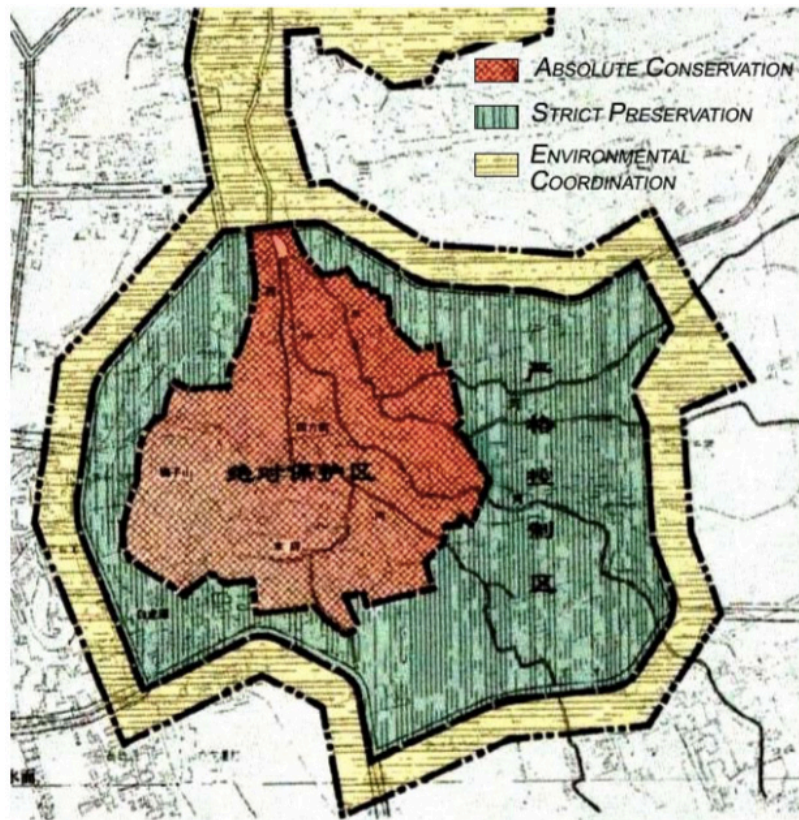
Figure 5.7 First Historic and Cultural Cities’ Preservation Plan of Lijiang (1988)



Source: Our Historic Cities and Historic Towns, 2007, p. 28

“Area Protection” refers to protect a particular district with relevant principles and standards. The old town is divided into three districts: Strict Preservation Area, Absolute Conservation Area and Environmental Coordination Area according to the Preservation Plan (Figure 5.8).

Figure 5.8 Preservation Plan of Area Control Map



Source: Our Historic Cities and Historic Towns, 2007, p. 71.

“Line Protection” refers to waters (rivers) protection and street space protection (Figure 5.9). This concept emphasizes the importance of street life and street spirit for the vitality and vigour of the city. The pedestrian-sized streets and linear shaped in the old town are required to be reserved and shall not to be expanded. All vehicles are not allowed inside the old town area except for the fire fighter trucks and the emergency. Besides, the pavements of the streets for maintenance shall to adopt granite stones which produced locally.

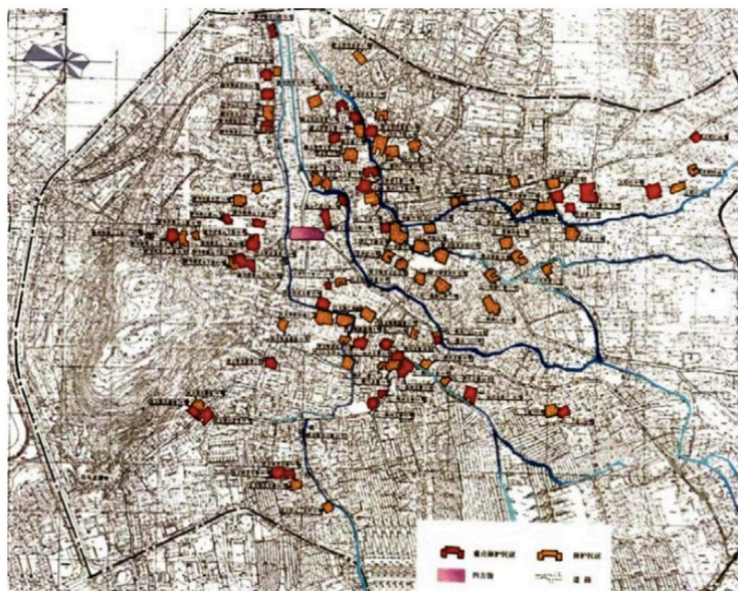
Another protected linear space are waterfront areas in Lijiang. The three rivers which flowing by gravity make Lijiang distinctive, the importance of them can never be overemphasized for the entire physical space. The Preservation Plan expressly states that the existing water systems shall to not be revised randomly as well by individuals or private organizations, including the location of the banks, levee, the flowing courses and the size of the channel.

Figure 5.9 Linear Space



“Point Protection” refers to protect residential courtyards, dwellings, certain buildings and bridges. At the end of 2007, sixty-six courtyards and dwellings in the old town of Lijiang have been designated by the Preservation Plan as conserved dwellings. Forty-six buildings are priority (Figure 5.10). Those courtyards are protected by the Preservation Plan in the following respects: building forms and shapes, plan layout, structure, landscaping in the courtyards, detailed decoration and elevation materials. The general preservation theory is to maintain the old dwellings of the building style of Naxis in order to keep the traditional sense of the place. As for bridges, the Preservation Plan prohibits vehicles from passing over bridges and emphasizes regular maintenance also. The strategies played a positive role in conserving built environment of Lijiang and the unique and traditional layout have been preserved and well saved so far with the strict implementation and help of the Preservation Plan.

Figure 5.10 Preservation Plan of Historic Dwelling Buildings and Courtyard



Source: Our Historic Cities and Historic Towns, 2007, p. 74.

Tourism Impact on Local Culture of Lijiang

Culture is another crucial component for the sustainability of tourism in addition to the physical element. It is a double-edged sword for the culture of Lijiang while tourism helps preserve the built environment of the old town. Lijiang has already made great progress in promoting the growth of economy through tourism by making good use of local culture. The local culture has been inherited and appreciated as well at the same time. However, the local culture has been diminished by the tourism industry on the contrary.

As a “National Historic and Cultural City” designated by the Chinese Central Government and as a “World Heritage Site” designated by UNESCO, the unique culture and long history of Lijiang contribute much to such reputation. Lijiang was established by Naxis which is an ethnic minority of China eight hundred years ago. Naxis have been the indigenous inhabitants and also the great majority of the population in Lijiang since then and they form their unique culture, Dongba Culture. Dongba Culture is the culture of Dongba Religion named after the priest “Dongba”, which meaning “Intelligent”. Dongba Religion does not have its own temples or churches which is so different from other religions. All religious activities of Dongba are held in urban public spaces or nature in order to keep a close contact and relationship with the daily life of human being. Dongba Culture includes Naxi ancient music, Dongba hieroglyph, Dongba architecture, painting and religious art. The core value of Dongba Culture lies in the religious books of Dongba, which written by Dongba hieroglyph. Those religious books cover a wide range of areas, which including war history, tales, marriage system, farming and music, customs, building construction skills, paintings and ritual procedures of Dongba, technologies and so on, all of which offer people precious references to do in-depth research so that to understand Naxis better (Figure 5.11).

Figure 5.11 Dongba Religion



Dongba Culture has received extensive attention from both home and abroad with the tourism development in Lijiang, especially after its successful application for World Heritage Site in 1997, its value has been fully understood firstly by Lijiang indigenous inhabitants, which arouses their passion and determination to cherish their distinctive culture. From the eyes of tourists, they realized that in the past, "the shortcomings and disadvantages that they thought were their strengths indeed; some useless things might be the most valuable resources" (Jiang & Lu, 1999). They began to realize that "if they do not treasure their own things but replaced to pursue exotic things, it seems like picking up a broken tile bowl but throwing away their golden bowl somehow" (Jiang & Lu, 1999).

Consequently, a group of scholars and experts sponsored by the government of Lijiang City engaged in and conducted a comprehensive collation and summarization of Dongba Culture in the year of 1997 in order to conserve local culture (Yang, 2004, p. 62), involving a variety of aspects of Naxis, such as history, natural landscape, weddings, festivals, customs, funerals, fairy tales, food costumes and music, folklore, dance, etc. The systematic work and summarization introduce the Naxis religion and culture professionally and accurately, the history of Lijiang and provide historical and theoretical explanations to some living habits and unique phenomenon of Naxis, both of which do a great contribution to keep Dongba Culture vigorous and alive.

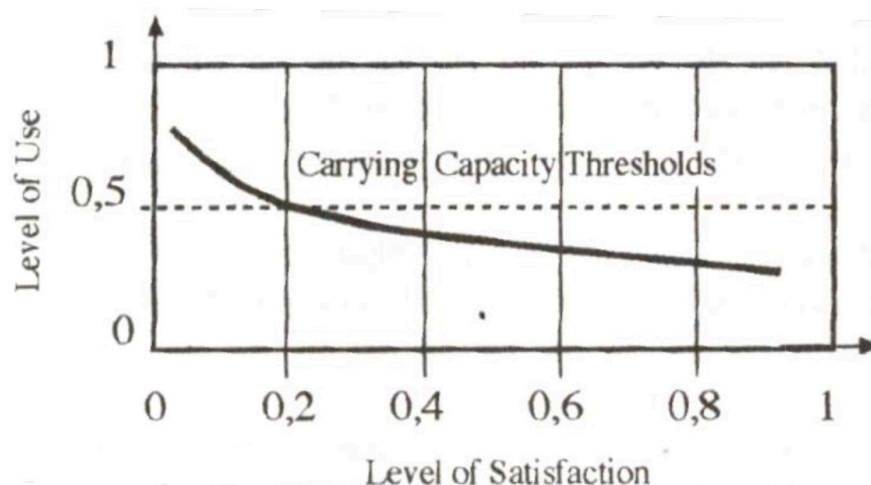
In addition, "Dongba Culture School" is being launched as well which sponsored by the local government of Lijiang (Yang, 2004, p. 67). Young generation are taught hieroglyphic writing, Naxis Dongba culture, music and worship and dance skills, a set of rituals, the techniques to make traditional crafts of Naxis like Dongba wood paintings and carvings, and how to play Naxi ancient music in the school. The elementary school which in the ancient town of Lijiang has been asked to teach students Dongba language and at least to offer students a two-hour Naxi Culture course per week as well since September, 2003. It cannot be denied that, for most of the young generation, the purpose of learning the Dongba Culture is for people who know the Dongba Culture to earn more money in order to pander the needs of the tourism market. On the other hand, no matter whatever the purpose is, the behavior and action itself act as a positive role in promoting the inheritance and preservation of Dongba Culture. Before receiving their own tour certificates, all tour guides of Lijiang are trained by Bureau of Tourism in Lijiang in addition to local schools providing training to young generation. However, other employees which related to tourism do not receive or attend any training related to the Dongba Culture, such as store operators. As for the training to visitors, there are no agencies or institutions in Lijiang which providing tourism-related education or trainings to tourists in order to protect local cultural and natural resources even though there is a great deal of information on the Dongba Culture. However, generally speaking, the Lijiang government has made great efforts in local culture preservation and conservation. Mr. Engelhardt, the Regional Director of UNESCO in the Asia-Pacific office, confirmed determination and behavior of Lijiang on the Dongba Culture (Duan, 2002), because economic development and growth depend on cultural resources virtually in the long term.

Even though tourism development arouses the compassion of people to protect Dongba culture, at the same time the tourism industry still brings some negative impacts on the Naxi culture. The Naxi culture has been amalgamated and influenced greatly by the culture of Hans since Lijiang embraced the tourism sector. For instance, the Yunnan dialect has replaced the Naxi language gradually and has become the mainstream language in Lijiang. Young Naxi couples teach their children Mandarin Chinese as well rather than the ancient Naxi language. However, Naxi language was the major communication medium before 1990. Even though children learned Mandarin at school at that time, they talked with each other by the Naxi language in daily life.

Another main reason why Dongba culture is impairing is overemphasizing the economic benefits of the tourism industry. The governmental organizations and institutions hold numerous art festival, cultural festivals and tourist festivals in order to attract more tourists and raise tourism revenue as well. Some private organizations vary and modify the original ethnic songs and performance of Dongba culture in order to sell more commercial products and tourism goods. Some private property owners randomly sell paintings and historic books of Dangba culture in order to make more profits (Yang, 2004, p. 65).

In addition, excessive tourists in Lijiang converge on the old town of Lijiang in recent years, which making it so crowded that it looks like a central commercial business district. Lijiang was criticized by UNESCO as a result of its great loss of indigenous inhabitants and over-commercialization in January, 2008, which reputed with long history and ancient culture once (Xiao, 2008). The satisfaction levels declined for both residents and tourists in the period of rapid growth of tourist according to the research by Parpairis and Coccossis (Figure 5.12). The recommendations are made to control the numbers of both residents and tourists in order to ensure the satisfaction level of both local residents and tourists for that reason.

Figure 5.12 Personal satisfaction and the number of tourist population



Source: Coccossis and Parpairis, 1996, p. 173.

Summary

The ancient town of Lijiang experienced continual population growth from 2000 to 2018 with an increasing rate of that of Yunnan Province according to the analysis of resident population. The increasing growth rates can be mainly explained by a high immigration rate in Lijiang caused by the potential economic benefits and the attraction of tourism. The author finds that the density is higher than many metropolitan cities such as Shanghai and Beijing by the calculation of resident population density in Lijiang. The resident population of Lijiang has arrived at an upper capacity with unsustainability. It is the right time to take effective action to reduce immigration from other communities to the ancient town if it's all possible.

The findings and analysis of stores in the main streets of central Lijiang verify that the relatively high migration rate caused by the following facts: 1) only 43% of store operators are Naxis for racial composition, which is far lower than the ethnic proportion of Naxis in Lijiang City (58.7%); 2) only 15.4% of the stores are owned by store operators but 74.1% of the stores in the research area are rented. The author also finds out that the building use in the central core of Lijiang has been changed dramatically from serving the resident population to serving the tourist population, from residential to commercial. The percentage raises to 75.1% in 2008 while only 36% of the stores were opened to serve tourists in 1995. 64% of the buildings in the research area were of residential use in 1995 but only 25% of the buildings were for residential use in 2004. Furthermore, the author finds out that the majority of the immigrants in Lijiang engage in the tourism industry and also serve tourists rather than local residents, which promotes that the transformation of the ancient town of Lijiang from residential to commercial functions undoubtedly.

Lijiang has attracted more and more tourists since it applied successfully for World Heritage Site designation. The tourist population of Lijiang increased by a factor of 3 times between 2000 and 2018. The tourist population in 2018 was 4 times that of the resident population, which means that the population density of the ancient town is almost half the density of Manhattan, NY. It is running the high risk of being unable to handle with the cultural and social repercussion of the dramatic increase in tourists adequately after considering the fact that Lijiang is basically composed of a two-story and three-story buildings primarily.

The land use density there doubled from 2000 to 2004 with the increase of tourist population and residents in Lijiang, which somehow challenges the physical features and traditional built environment. Thanks to the Department of City Planning of Yunnan Province (DCPYP) which made great efforts and gave considerable attention to protect the spaces and physical elements of Lijiang at the same time with developing the tourism industry. The most important strategies that they adopted contain the following: 1) establishing the Designation system of Historic Cities; 2) making a Preservation Plan of Cultural and Historic Cities; 3) “Developing New District and Preserving Old Town”. The traditional built environment of Lijiang is well saved and preserved because of those visionary actions.

Furthermore, the author finds that the impact of tourism is more positive than negative upon local culture. The enormous economic benefits which brought by tourism at first shocked the population in Lijiang and changed the notions of people about their traditional culture basically. After that residents took responsive actions to preserve the Naxi culture, which including launching Dongba Culture School, sorting out Dongba Culture, teaching young generation the Naxi language and etc. At the same time the Naxi culture faces paramount pressure of over assimilation and commercialization by the Hans culture because of the excessive tourism in recent years. But the fortunate thing is that in recent years the governments and Naxi people have realized the problems and also placed more emphasis on the Dongba Culture.

CHAPTER 6--- METHODOLOGY OF CULTURAL INNOVATION FOR THE SUSTAINABLE TOURISM

Innovation of Cultural Heritage Sites

The use of new technologies has exponentially grown, permeating every aspect of our lives over the last few years. Consequently, it also has affected the way how different communities around the world experience heritage, no matter that of other cultures or their own. People are encountering monuments and sites increasingly and learning about the past through digital media, in the form of digital representation of artefacts, virtual reconstructions, online videos and so on. This is particularly the fact for younger generations, for who the first experience of cultural heritage is often through a digital substitute that shapes their perception and understanding.

It is interesting to observe how the different digital tools have not only reshaped the traditional humanities questions that we ask, but also allowed the processing and collection of heritage data at the same time. Digital technologies now are being used for modeling (geographic information systems for example), capturing data (laser scanning and geophysical surveys for example) and engaging with different audiences (either through gaming, mobile devices, augmented and virtual reality) in various contexts, such as cultural tourism, schools, life - long learning and museum visits.

The digital revolution has made our world smaller, which making distant sites and cultures more accessible than ever. 3D models, high resolution images and video recordings provide multiple views of heritage sites with immersive applications which giving users the actual feeling of being there from all over the world.

Heritage is the vital link for us to past societies and cultures, this involves complex phenomena and interrelationships by definition. The use of digital tools can help professionals and specialists organize the large amount of data which involved in the recording of the past and scientific investigation, but they can make these more understandable to a wider audience as well. For instance, digital devices (mobile and transportable increasingly) are being used in excavations to record socioeconomic changes and capture information over time. Interactive games and virtual exhibitions can help diverse user groups understand the interpretations of specialists which often with no prior or little knowledge of the subject. The combination of different digital media can be very powerful in the learning process which place the user in an active role as long as being used appropriately– from moving images to graphic diagrams, sound, programming tools and maps.

Digital resources can be used to help prepare a visit to a heritage site in order to make it more enjoyable and understandable or can be accessed after a visit to help visitors build on it, make connections with other sites and provide context once curiosity has been triggered therefore allowing longer - term and deeper engagement. Digital technologies are being used increasingly during heritage visits as well, whether visiting with friends and family or as part of an organized group as in the context of a school trip for example. There is a growing number of mobile services and apps for cultural tourism, which providing trails and suggestions to follow according to the interests, location and previous choices of users. Meanwhile, the use of social media is helping different audiences share it with different communities and personalize this digital heritage material so that to make it their own, blurring the boundaries between the personal and public spheres increasingly.

It is hopeful that digital applications promote an understanding of heritage as well as encouraging users to appreciate and value heritage by providing different types of interaction with heritage material. This is the best long - term investment for the preservation of heritage ultimately. It is hopeful that you can attract users to the integration, particularly younger ones by using the power of the medium in many cases. Consequently, hopefully providing attractive digital heritage applications that encourage appreciation and understanding of heritage will create citizens who will help fight against its destruction and preserve heritage.

It is very difficult to assess to what extent those strategies have been effective and successful in encouraging a new appreciation of heritage. They have already made us redefine the views of the past and look at it in differently new ways. The advanced digital tools have just put a modern sophisticated look on very conservative and traditional interpretations of the past, which projecting contemporary biases that regarding past societies at the same time in some cases. It is worth examining those issues in practice by looking at some main digital applications which used in the digital heritage field in order to get a clearer picture of the different perspectives that have been followed and the specific manifestations that have taken place.

The benefits of computer models are undeniable. Those significant exhibits are developed providing possibilities not only to see, but to interact thereby which allowing a better understanding of their meaning and historical events as well by reverse engineering and prototyping. Three-dimensional visualization provides virtual tours not only in different times but also in different places. The interaction with the artefacts promotes new opportunities to encounter new knowledge and creates inclusivity within the public.

By providing new opportunities for individuals and adopting new ways of thinking, it's possible to measure the engagement of the experience of a visitor to explore new concepts and ideas and invent personal knowledge. People can have a chance to connect and discover the new knowledge if the visitor experience new challenges in present, which can lead to personal growth as well. In addition, it is essential to support the affiliation of visitors, which is a vital issue to build links and connect the visit before and after by creating hype around specific collection in order to promote the returning of visitors.

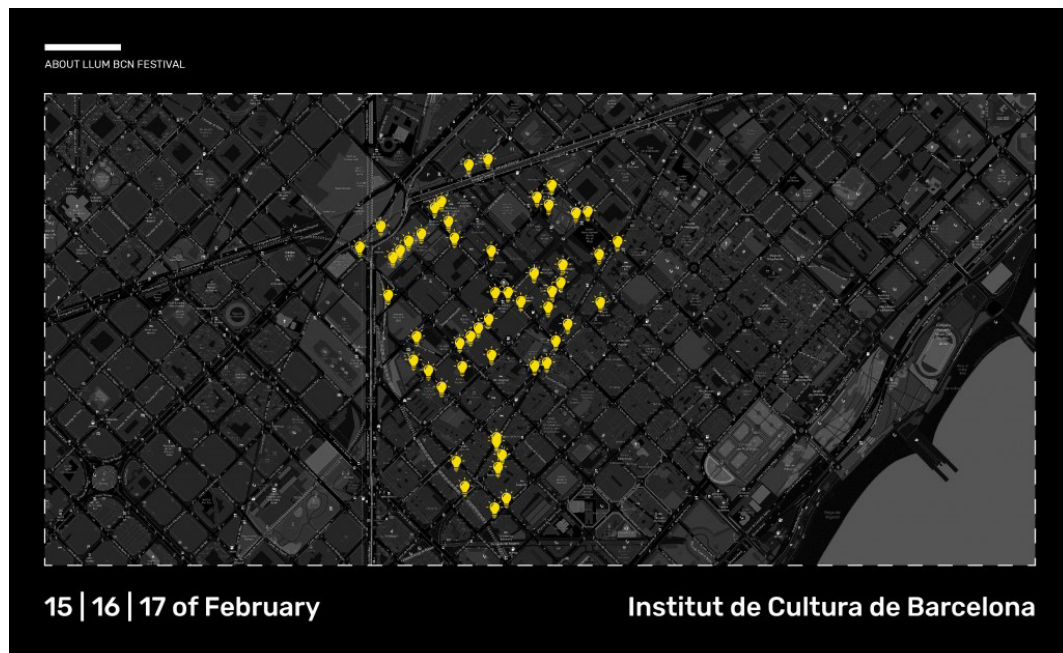
There are three key points should be considered: 1) May synchronize different cultural/ethnic/social groups by offering themselves as a new common terrain for familiarizing and experiencing with new forms of space; 2) May permit divergent interpretations by individuals thus fitting into the “individualization” and “diversity” of new modernity; 3) May generate new social solidarities among inhabitants grounded on “economic prospects” and “civic pride” by promoting economic/tourism development and becoming landmarks.

How to combine the intangible heritage sites (dance, music, religions, etc.) with tangible heritage sites (cultural relics, character, neighborhood, architectures, etc.) through new design forms to provoke nowadays generation realize the importance of innovation and rational protection of cultural heritage sites during the age of sustainable urban development.

Study Cases

Llum BCN transforms the streets of Poblenou into an open-air, huge experimentation laboratory which using light as the creative medium to explore the possibilities that offered by new technologies such as large-scale projection, dynamic lighting and interactive environments in urban spaces for the second running (figure 6.1).

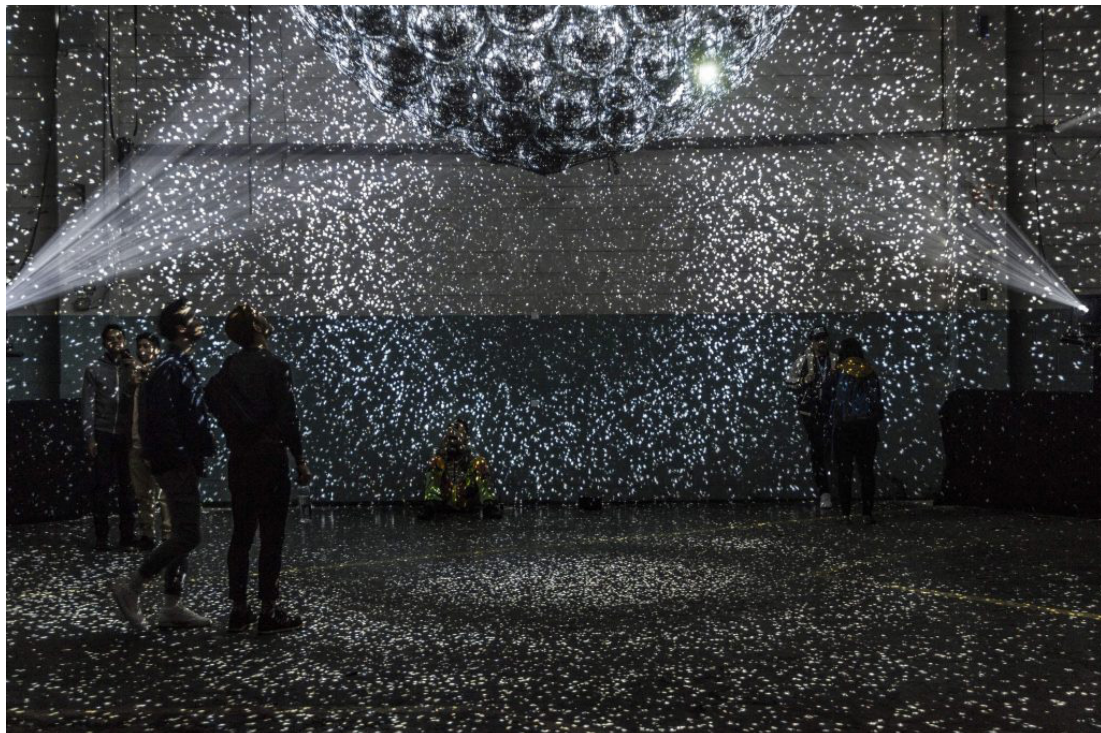
Figure 6.1 The distribution of Llum BCN 2019



The urban landscape is distributed which moving between old chimneys, next-generation, large building, the empty plots of land and often some industrial warehouses for three nights. Very diverse spaces which full of meanings that come together with the transformative power of light and its expressive capacity to create a unique festival.

It is an invitation for city residents to discover a new way to inhabit the streets of city. It is a trial run and also a reflection in what direction and on how the language of the public space can be evolved in the future (figure 6.2).

Figure 6.2 The Llum BCN 2019



MIRAGE is a site-specific installation which set in the Southern California desert. The sculpture is composed of reflective mirrored surfaces by utilizing the form of a ranch-style suburban American house. MIRAGE distills the repetitious and recognizable suburban home into the essence of its lines, which disappearing and reflecting into the vast western landscape. Mirage opened as a site-specific contemporary art exhibition which curated by Artistic Director Neville Wakefield as well as a part of Desert X on February 25, 2017 as (figure 6.3).

Figure 6.3 MIRAGE_Doug Aitken, 2017



Movement was the driving force behind the settling of the American West, the long flat vistas shaped the ideology behind this iconic embodiment of American architecture that stretched toward the Pacific. The California Ranch Style was informed by the ideas of architect Frank Lloyd Wright who believed that architecture should be both of and in the landscape, which is unique to the West. A small inspired group of architects that working in the West and California created the first suburban ranch style houses in the 1920s and '30s, which fusing the fluid treatment of spaces of Wright with the simple one-story homes that built by ranchers. The streamlined simplicity of the ranch style gained popularity as commercial builders employed a simplified assembly line which approach to create this efficient form in order to match the rapid growth of the suburbs after World War II. Since then the mass-produced ranch home became a familiar sight across the country which the style filling the American landscape as once each new subdivision was built.

MIRAGE is reconfigured as an architectural idea: now the seemingly generic suburban home devoid of a narrative which includes its inhabitants and their possessions. This minimal structure functions in response to the landscape around it entirely now. The windows, doors and openings have been removed in order to create a fluid relationship with the surrounding environment.

MIRAGE is perched over a distant modern development that fades itself into the open desert due to the situation of the juncture where the rugged San Jacinto mountain range gives way to the Coachella valley. Its familiar architectural form becomes a visual echo-chamber endlessly and a framing device which reflecting both the pursuit of its conquest and the dream of nature as a pure uninhabited state as MIRAGE pulls the landscape in and reflects it back out. Its mirrored surfaces form a life-size kaleidoscope that reflects and absorbs the landscape. Exterior and interior, object and subject, the physical and psychological; each of these oppositional forces are held in constant tension, as well as allowed to transform and shift in the ever-changing desert-scape.

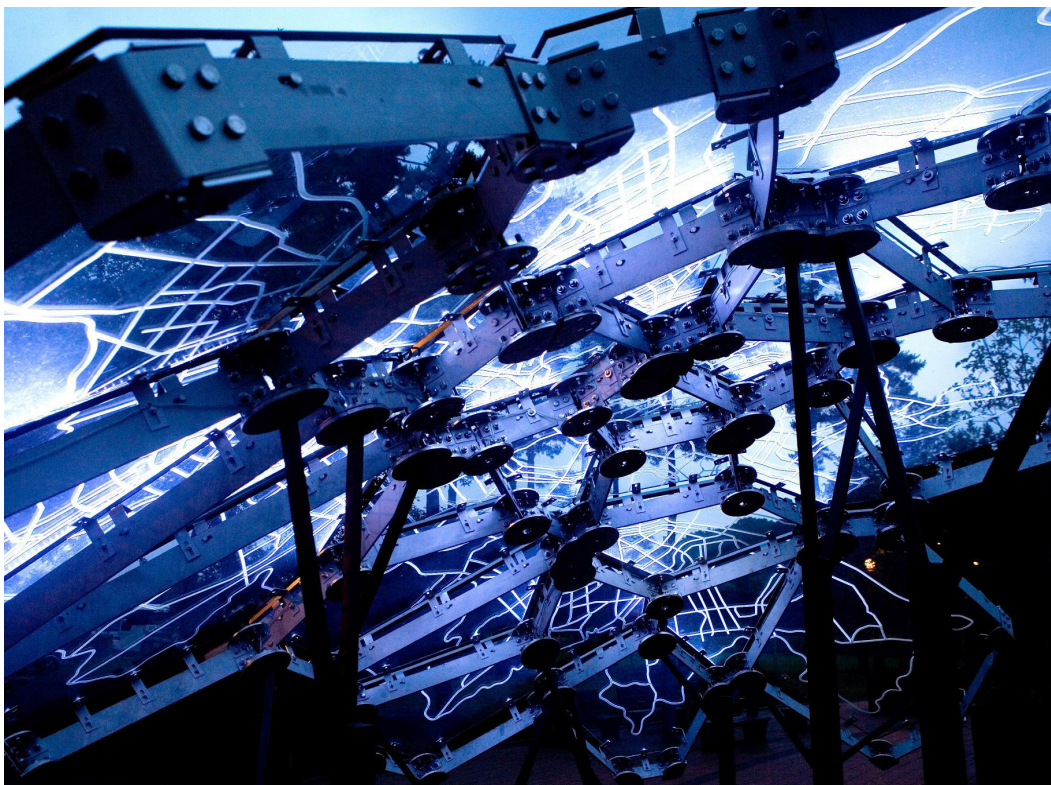
MIRAGE works to distort and frame the evolving world outside of it like a human-scale lens. As each variation provides something new, there is no single time to view this work: on a tranquil afternoon the sky is transformed into banks of blue which fragmented by slices of clouds; at night the distant lights refract to create a universe of stars. There is no correct interpretation or fixed perspective. Each experience of this living artwork will be unique (figure 6.4).

Figure 6.4 MIRAGE_Doug Aitken, 2017



Living Light is a permanent pavilion that blinks and grows according to the public interest in the environment and real-time air quality. It suggests that building of the future may not only change in response to the environment but also provide an interface to the health of city-making visible the invisible. The pavilion offers both ethereal information and tactile enclosure (figure 6.5).

Figure 6.5 Living Light, Seoul, 2009



Living Light is a prototype of a dynamic building envelope. The project brings urban data---such as air quality---to life of public space as well as domain of personal devices. The quality of air-measured by the level of contaminants like nitrogen dioxide, carbon monoxide and PM-10---affects public health. It varies between neighborhoods as well.

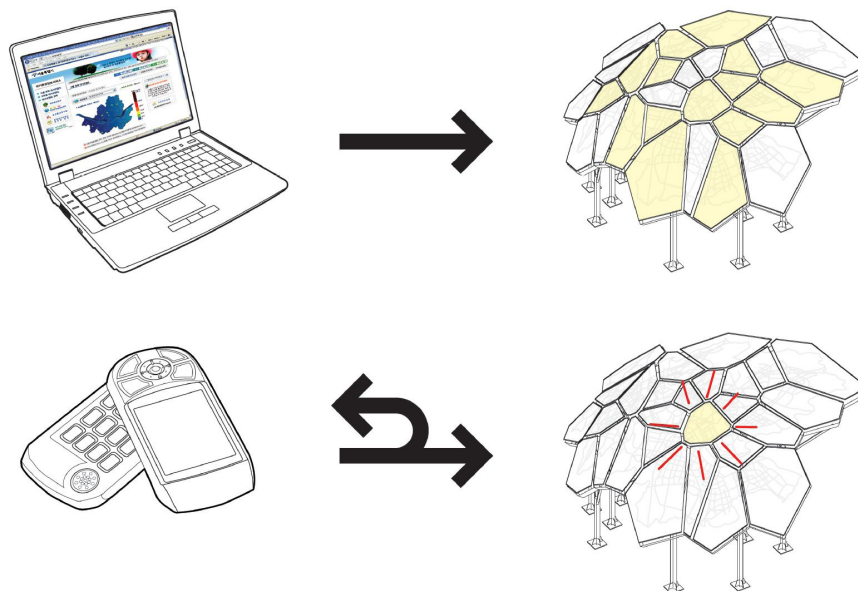
(1) Every hour the map goes dark and the neighborhoods light up in order of best current air quality to worst.

(2) Each neighborhood lights up if its air is better than a year ago.

(3) Citizens can text the pavilion with a postal code, then receive a message back with the real-time air quality of neighborhood and cause the neighborhood on the map to blink.

The pavilion becomes a register of our collective concern about an important personal and urban issue as well. The more blinking, the more collective concern. Once people text in a request, the building becomes a contact in their phones, which offering a new framework for human communication with buildings. Citizens participate in a low-resolution public discussion about the future of the environment through the pavilion (figure 6.6).

Figure 6.6 Data map and physical map

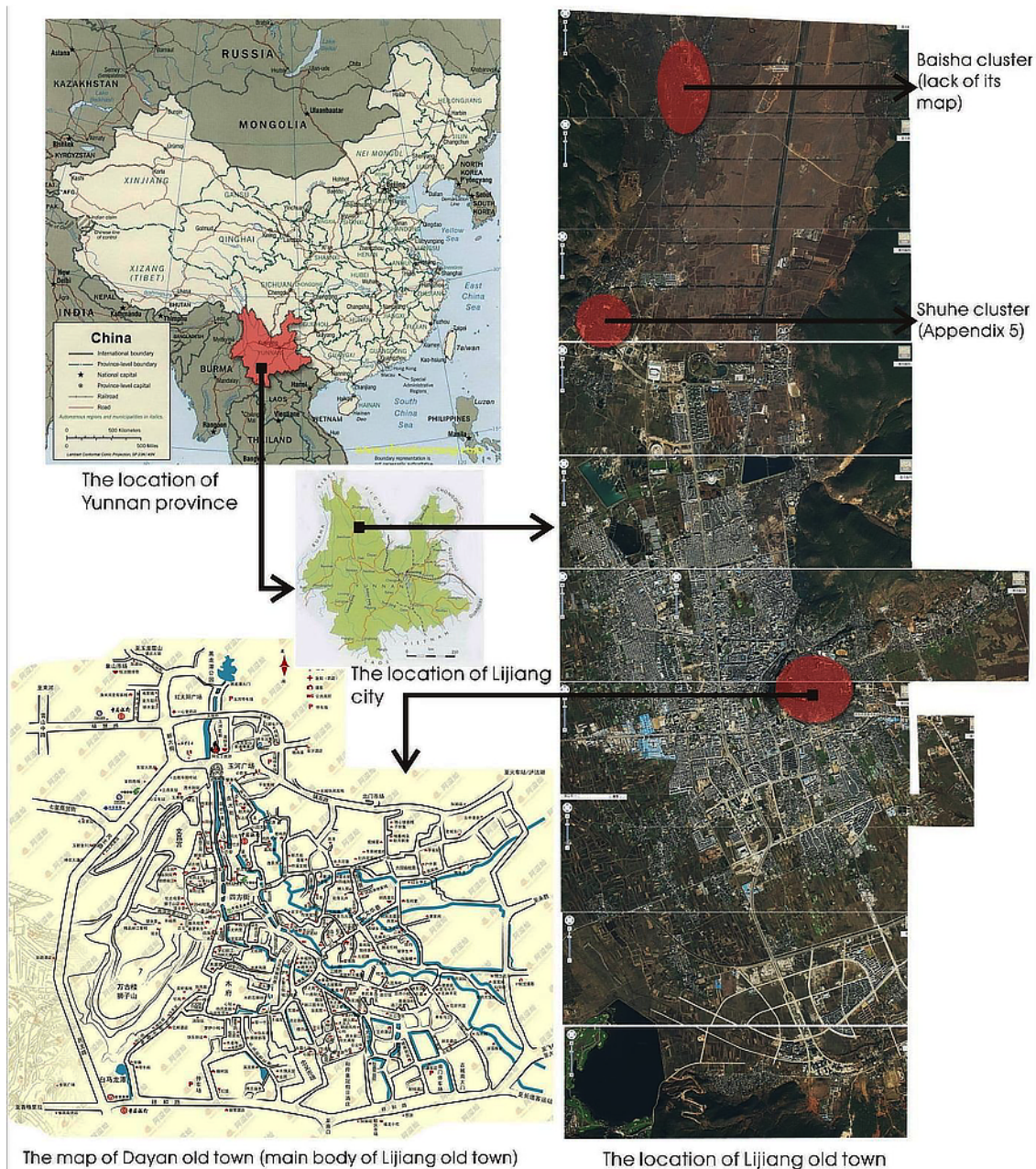




Tourist Spatial Distribution of the Old Town of Lijiang

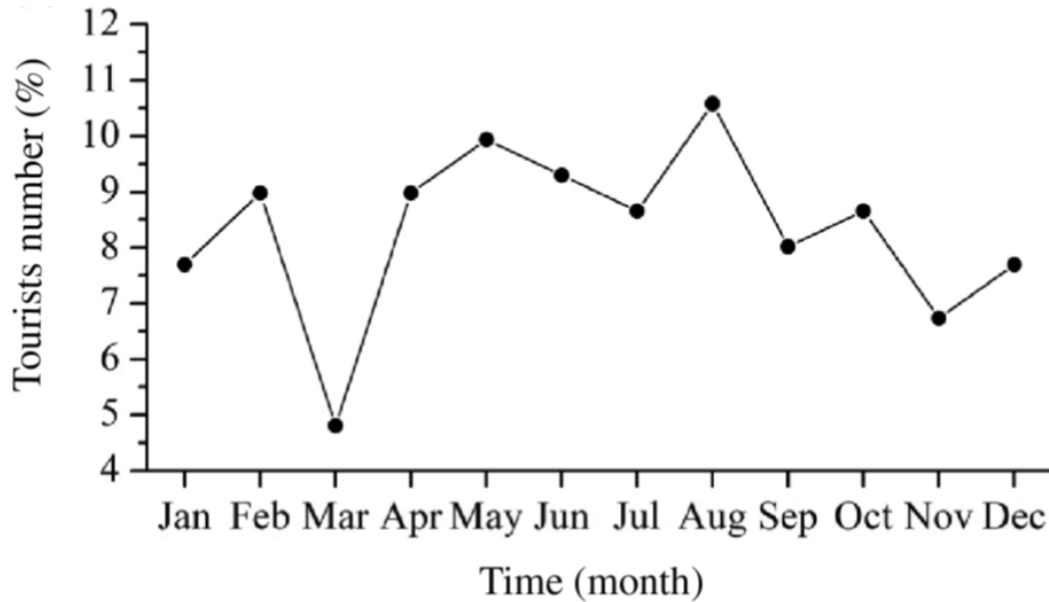
Lijiang has a great reputation of its traditional way of life and culture. As a result, it has already attracted huge tourist populations since it initially began to develop tourism in the beginning of the 1980s. The Ancient Town of Lijiang is one of the most favorite tourist attractions without any doubt (figure 6.7).

Figure 6.7 Study area and position in China



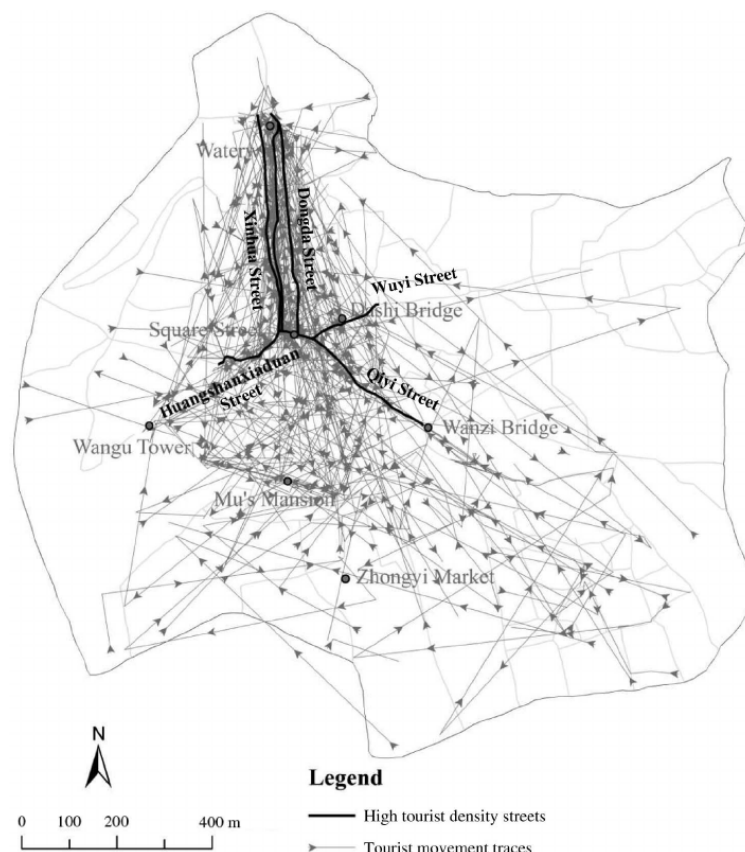
According to the research, the tourist temporal variation was uneven that more Chinese tourists visiting during holidays and festivals. The statistics shows that tourists were more active on August which was the busiest month of the year (figure 6.8).

Figure 6.8 Tourist temporal variation: monthly



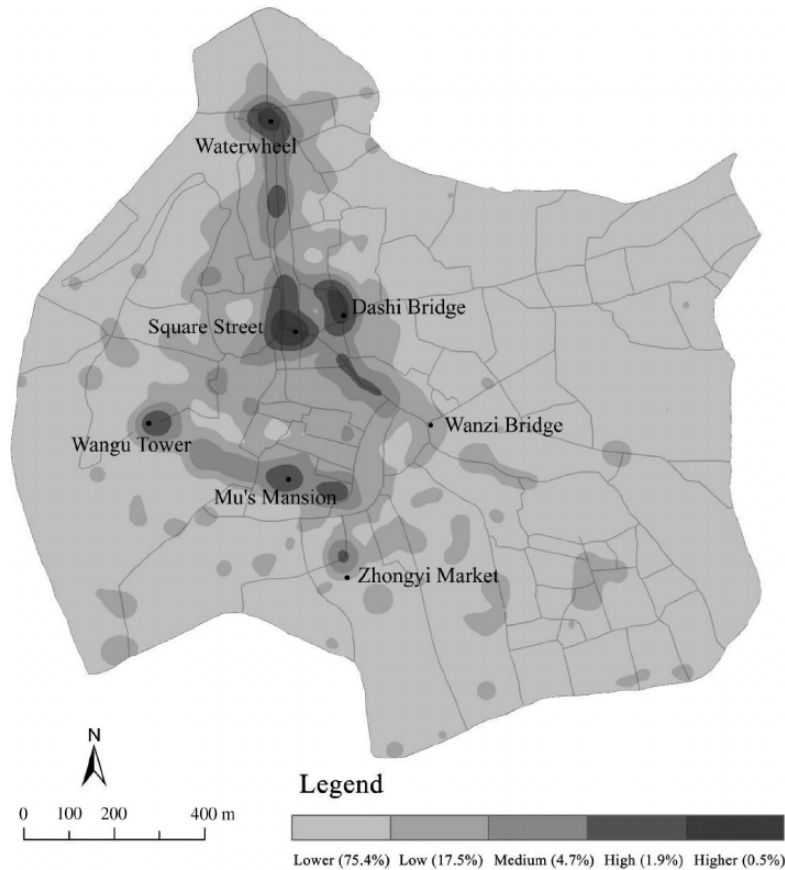
High tourist density streets included Xinhua Street, Dongda Street, Huangshanxiaduan Street, part of Wuyi Street (from Square Street (Sifangjie) to Dashi Bridge) and Qiyi Street (figure 6.9). Dongda Street and Xinhua Street were the most crowded streets, Square Street was an important tourist distribution center.

Figure 6.9 Tourist movement traces and flow map



Tourist hotspots occupied a small fraction of the Old Town as we can see (only 2.4% of the total area was classified as high or higher density). What's more, they tended to be concentrated around the Square Street, Waterwheel, Wangu Tower, Dashi Bridge and Mu's Mansion (Mufu) (figure 6.10). Square Street was the most attractive place among them.

Figure 6.10 Tourist hotspots map



In addition, the spatial distribution of tourist intensity was uneven and may be attributed to street distribution, commercial distribution and scenic spot distribution. Xinhua Street and Dongda Street are the major streets to enter the Old Town; shops there are concentrated and their tourism services are well developed enough. There are 199 shops on Xinhua Streets and 159 shops on Dongda Street (Wang 2007) respectively with shop densities of 43/100 m and 33/100 m. Square Street is a transport hub and there are many shops around it as a result. Square Street, Waterwheel, Dashi Bridge, Mu's Mansion (Mufu) and Wangu Tower are attractive places, but tourists generally consider that Square Street is the most representative place (Li 2005).

Design---Invisible Room

The idea of INVISIBLE ROOM is to create a specific environment that avoid all external interference but only integrate visitors with unique identities of Lijiang by enhancing specific experience in order to allow wider range of visitors to dialogue with the mysterious ancient civilization through interacting with different installations, which highlights the vital needs of contemporary innovation for traditional cultural heritage sites at the same time (figure 6.11).

Figure 6.11 Rendering of Invisible Room

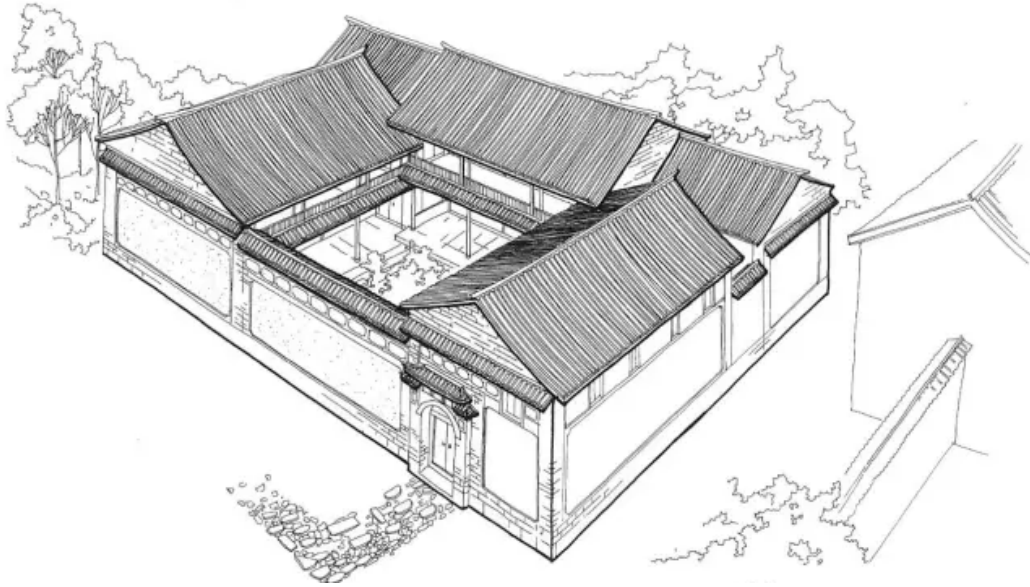


Inspired by the MIRAGE of Doug Aitken, we used the mirror for reference as one of the main materials for Invisible Room. Because for the most of heritage sites, the most important thing that should be considered is conservation. Building a room made by mirror can protect the original environment very well, so that it will not be too abrupt to be compatible, but it can also be compared with the surrounding environment just right in order to highlight its distinctiveness and attract the attention of the crowd for that reason.

Different from MIRAGE, in order to create a space that is comparatively isolated and dim from the outside world, we have replaced the original window structure with a fully enclosed structure, using a circle of 10 thickness of glass arranged in the direction of the bottom edge of the wall to meet the basic requirement of light. The contours of the glass lighting belt actually are the outline of the indoor space and the exit, which playing a role in guiding the crowd

As for the form of room, we borrowed from the traditional residence of Lijiang. The residential architecture of the ancient town of Lijiang is a concentrated expression of the Naxi architectural art and architectural style. It is formed on the basis of the Naxi original dry-type squatting form, which absorbs and integrates some advantages of Han, Bai and Tibetan national architectures. It has distinct local characteristics and ethnic groups in terms of layout form and architectural art style (figure 6.12).

Figure 6.12 The traditional residence of Lijiang



The structure of the Lijiang dwellings is very flexible. There are hanging hills and main parts of the wooden frame. There are components such as “Lemahang”, “Foot”, “Wearing” and “Thousands”. The frame is tilted inward at a slope of one percent, and the base of the column is flared outwards, enhancing the stability of the frame. (figure 6.13).

Figure 6.13 Invisible Room

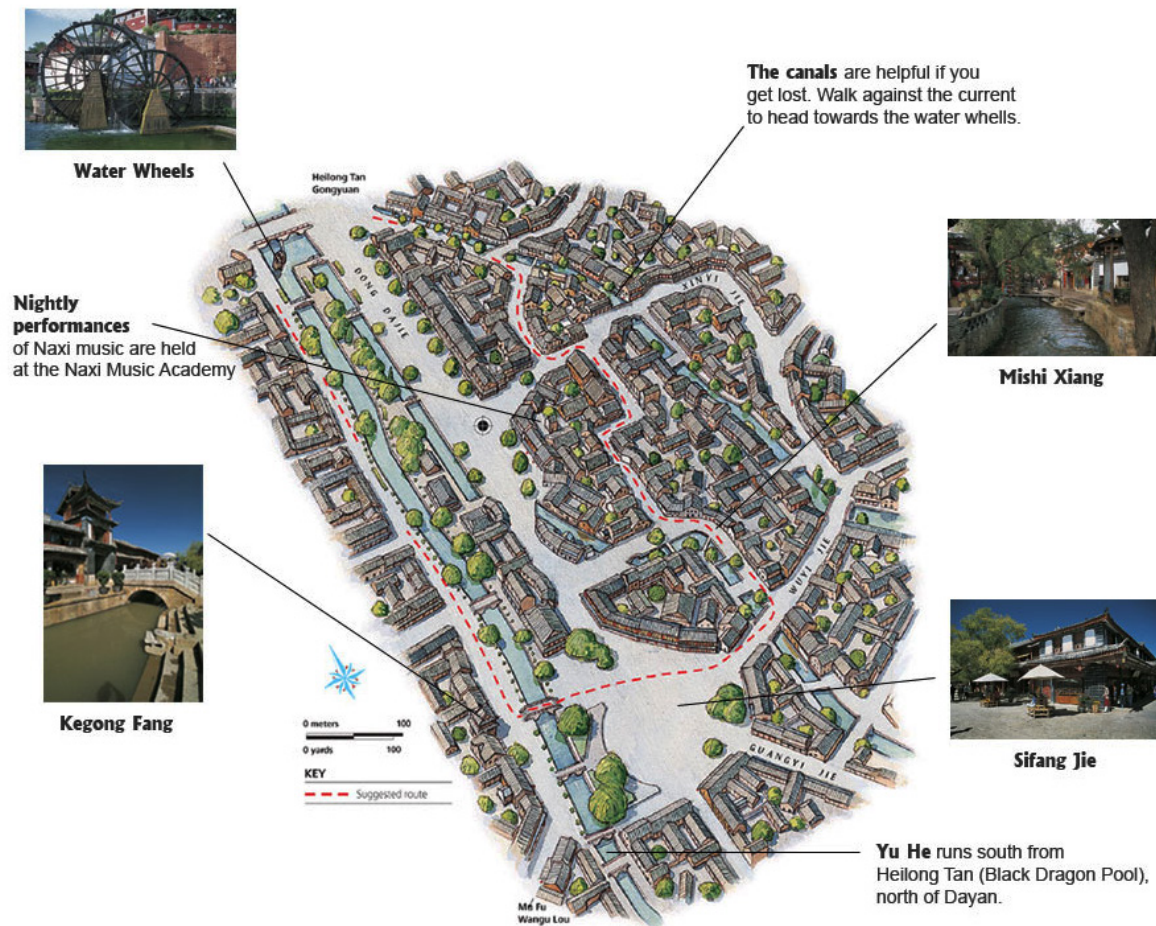


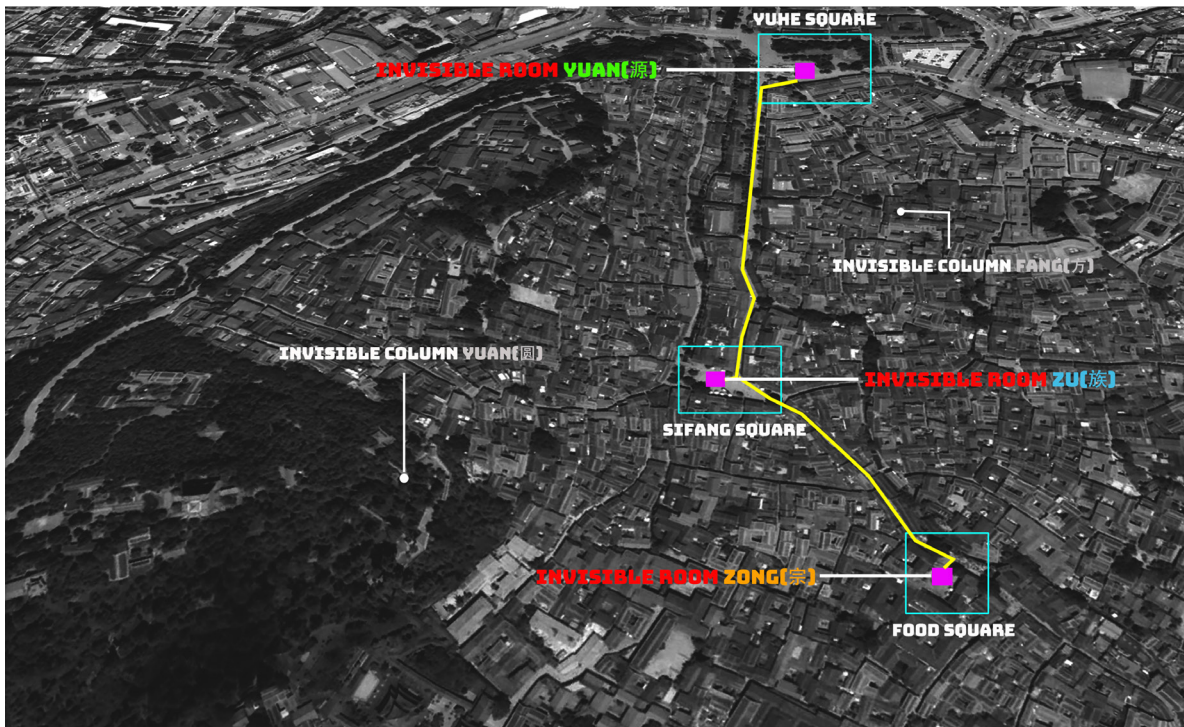
Distribution of Design

In order to not only record information about findings and sites across space and time, but also relate them to location and record complex socioeconomic data, we started to consider what if we could design something physical based on the previous data. What is the best way to complete the whole system instead of breaking the balance?

Therefore, we choose three cardinal tourism hotspots as the placement of our Invisible Room---Yuhe Square (Waterwheel), Sifang Square (Square Street) and Food Square (Wanzi Bridge). The three-point route is totally the main route for tourists. Each of Invisible Room was given to a different theme to reflect unique geographical features. On the other hand, those Invisible Rooms lead the explicit way for visitors to tour the Old Town of Lijiang. (figure 6.14).

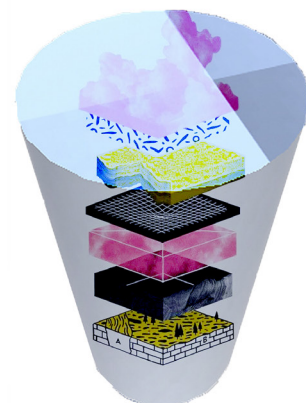
Figure 6.14 Distribution of Invisible Rooms





What's more, we designed two Invisible Columns, which made by mirror as well, in order to complete the whole system more comprehensively (figure 6.15).

Figure 6.15 Invisible Columns---Yuan (圆) and Fang (方)



We choose another two incorporate ideas of Chinese culture---Yuan (圆) and Fang (方)--- soft exterior but tough interior and balance the hardness with softness (figure 6.16).

Figure 6.16 The ideas of Yuan (圆) and Fang (方)



The radius of Invisible Column Yuan (圆) is 0.5 meter with a height of 2 meter. We put one of it on the top of Lion Mountain, which lies on the west edge of the Ancient Town of Lijiang to have a beautiful view and reflection of the whole area perfectly (figure 6.17). The side length of Invisible Column Fang (方) is 0.5 meter with a height of 2 meters as well. We put it inside the Maicao Square (Xinyi Street), which is the second main entrance near the east of Dongda Street to make sure those visitors who select other niche routes can also have the opportunity to participate in the interaction of the entire system (figure 6.18).

Figure 6.17 Invisible Column Yuan (圆)



Figure 6.18 Invisible Column Fang (方)



Cultural heritage is not seen as a priority for national development unless it related with social values, economic activities and local development is made evident in most countries (Ruoss 2013). Effective use of the concepts of contemporary innovation or even the tool of digital technologies in the cultural sector can help in this direction, which supporting the sustainable conservation of heritage as an essential engine for cultural and social development.

Invisible Room Yuan (源)

The theme of first Invisible Room which located in the north entrance of the Ancient Town of Lijiang named Yuhe Square (waterwheel) is Yuan (源) (figure 6.19). It represents the original environment surrounding the Ancient Town of Lijiang. As the saying goes, the unique features of a local environment always give special characteristics to its inhabitants. It is a good way for visitor to know one place better that starting from the geographic information (figure 6.20). As a result, we mainly focus on the geography of the Ancient Town that combining with the digital technology for Yuan (源).

Figure 6.19 The location of Invisible Room Yuan (源)

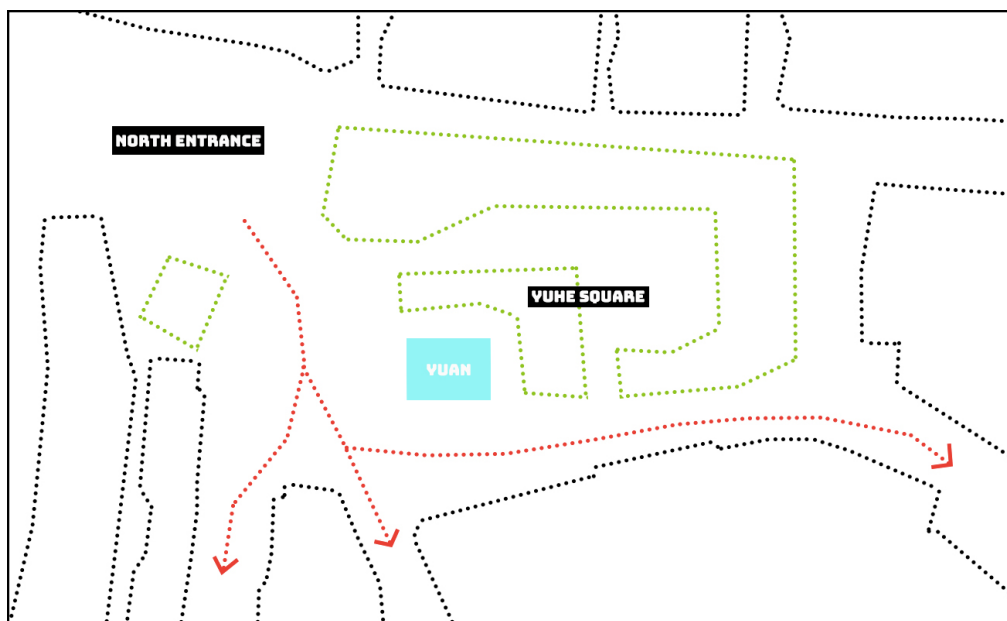
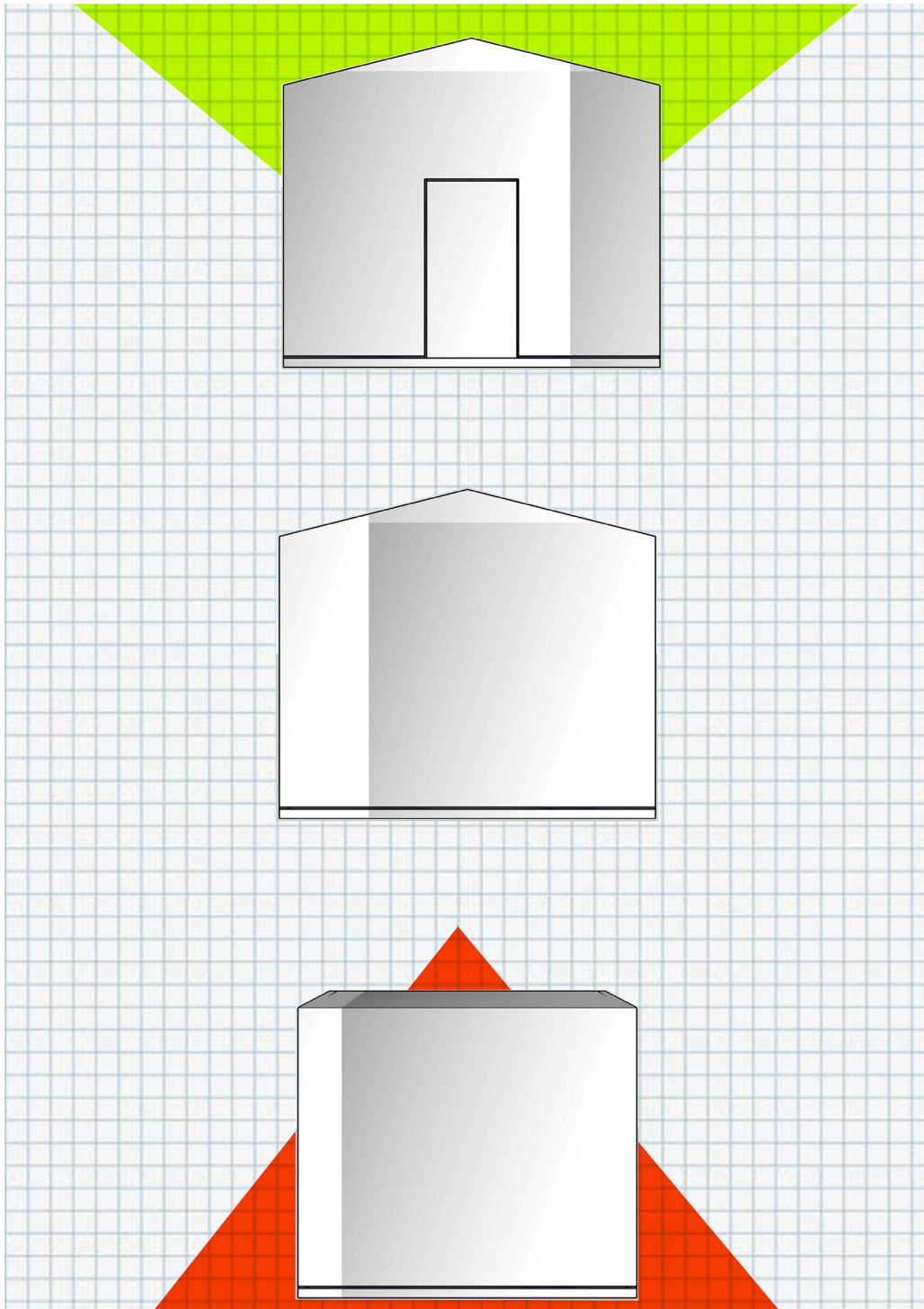


Figure 6.20 The daft of Invisible Room Yuan (源)



The size of Invisible Room Yuan (源) is 4 meters length by 3.5 meters width by 3.5 meters height, which is the biggest among those three due to the square which it locates has broader space (figure 6.21).

Figure 6.21 Invisible Room Yuan (源)



As for the inside display, we designed a Living Light Map of the Ancient Town of Lijiang to offer real-time noise data on a dynamic platform. As we know, Lijiang already existed digital billboard to response the real-time levels of noise around the Ancient Town (figure 6.22).

Figure 6.22 An existing digital billboard displays real-time level of noise

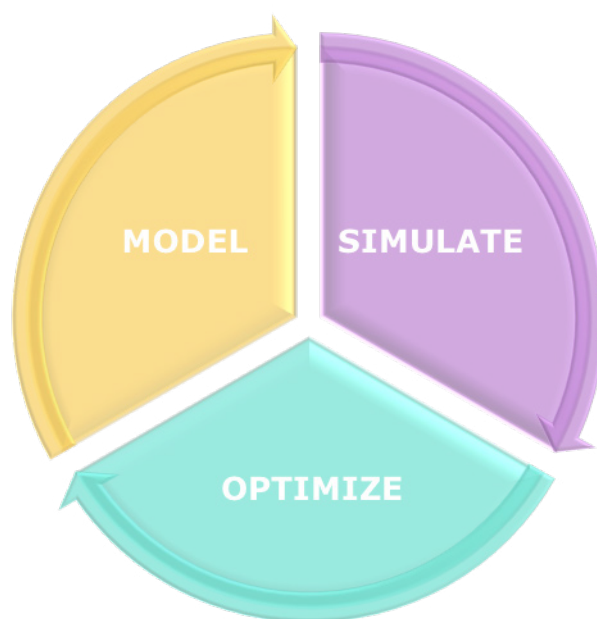


One of the challenges of the architect is to assess a large amount of project requirement, information and aspiration, then create a building design that meets often, multiple competing and objectives. There are aesthetic goals, programmatic specifications, environmental targets and structural criteria, which must all be carefully balanced.

An era of using 3D modeling software to design new forms which in the early years of digital design in architecture was followed by an era of incorporating manufacturing. However, the current era now involves incorporating simulation software to evaluate the performance of new forms. Building designs are analyzed increasingly with this kind of simulation software --- computational fluid dynamics (CFD) for flow of water and air, environmental analysis for energy use and solar gain, finite element analysis (FEA) for structure and even crowd behavior simulation for evacuation and safety. Furthermore, the integrated use of software for manufacturing, modeling and simulation allows non-standard and complex designs to be evaluated and created almost as easily as traditional and simple designs. At the same time, some engineering disciplines have developed a similar but extended process which adds optimization on top of manufacturing, modeling and simulation. They are using multi-objective optimization and evolutionary computing in some applications in order to evaluate, generate and evolve the performance of many possible design options automatically. This process from engineering represents a natural further step for digital design in architecture, since architecture has been slow to adopt multi-objective optimization.

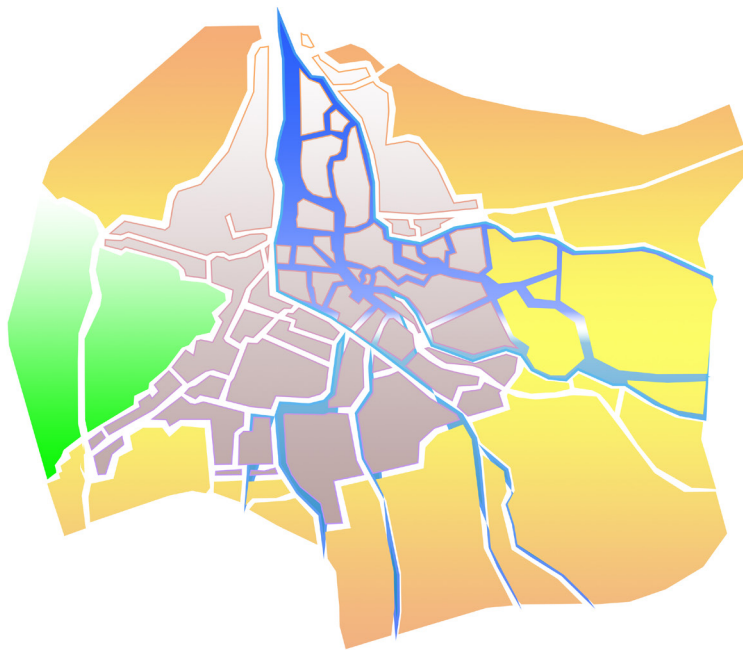
Since the vast majority of architecture projects apply simulation software to a very small scale of design late in the process, the Living Light Map of the Old Town of Lijiang would experiment with applying simulation software appropriately (figure 6.23).

Figure 6.23 The workflow combines modeling, simulation and optimization



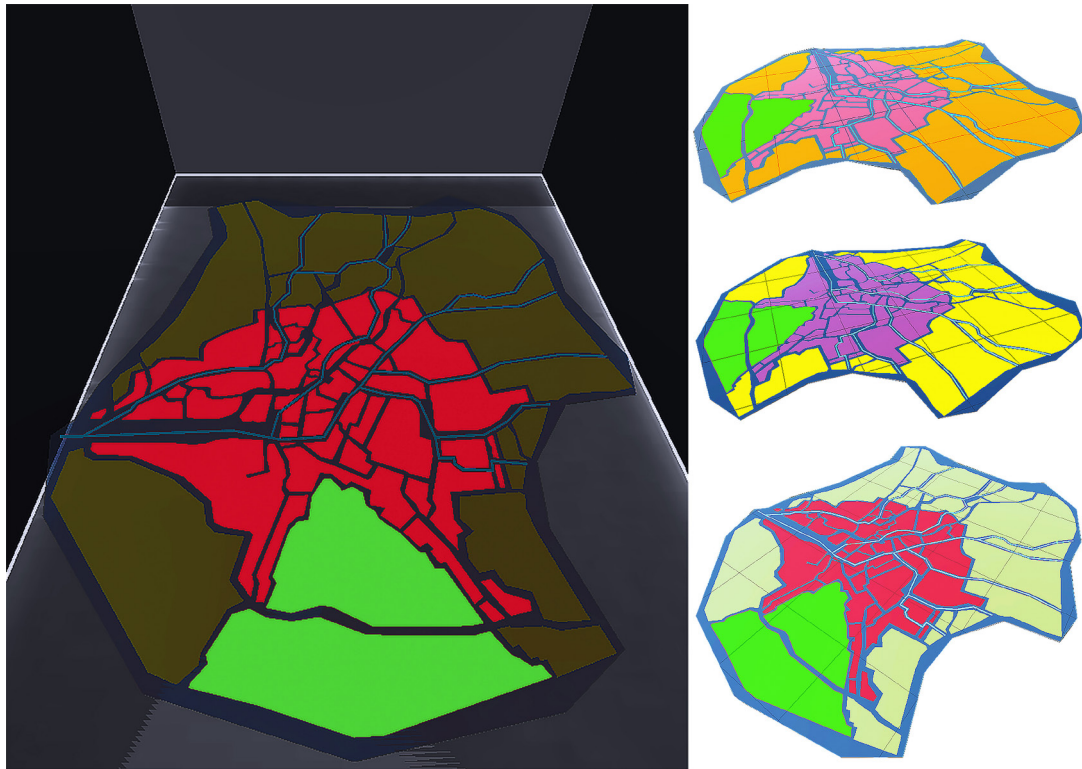
Our noise-level platform involves a map of the Ancient Town of Lijiang made of data, light and acrylic that blinks and glows according to real-time level of noise and public interests in the environment. The map is a physical object inside the Invisible Room Yuan (源). Each of neighborhoods of the Old Town corresponds to a specific color's flat polygon of transparent acrylic with etched rivers and roads which illuminate according to the data. The size of platform was designed according to lighting performance, material properties and condition of site (figure 6.23). The project suggests that display itself can become a new kind of warning device. The workflow includes parametric modeling with links to multi-objective, structural analysis and an optimization engine.

Figure 6.23 The layout of Living Light Map of the Old Town of Lijiang



We start with a map of the Old Town, then ten noise-monitoring station and new neighborhood boundaries that divided by main roads and rivers. Each area encloses the noise nearest to one the sensors. in the design of the project, it should create a digital model with several layers of different resolutions. In addition, every hour we extract a part of the sound from the detected area that has the highest noise decibel. It would be synthesized simply by the synthesizer and played as an interior sound source in order to create a unique experience of different time and space. Unfortunately, we only can design the 3D model rather than all processes due to the limitation of time and capacity (figure 6.24).

Figure 6.24 3D model of Living Light Map of the Old Town of Lijiang



The project offers three layers of dynamic information:

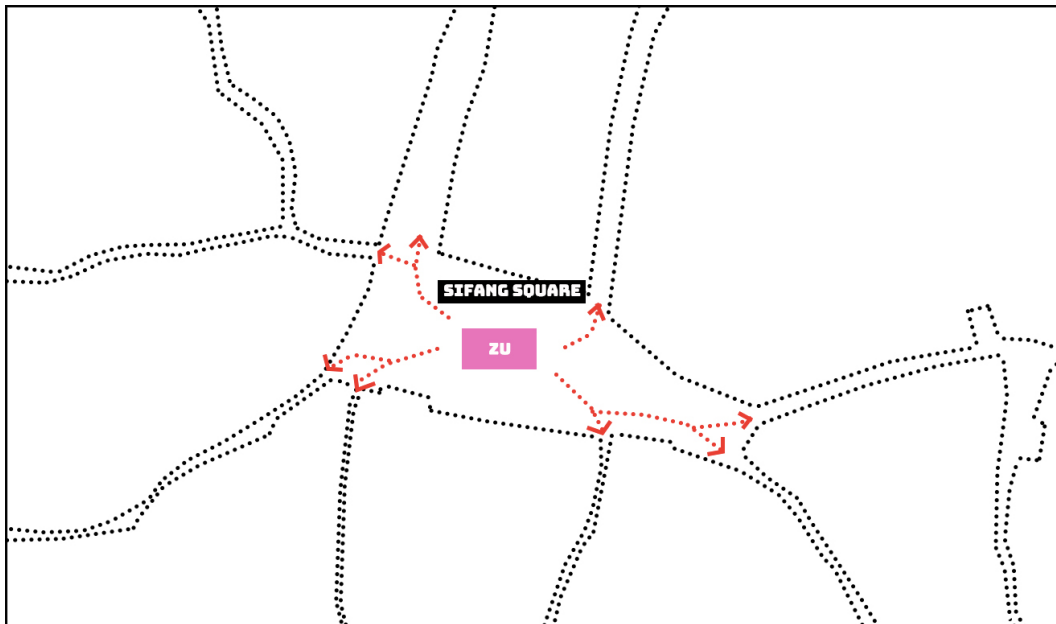
- Display of noise-level improvement: neighbourhoods light up once the noise level is lower than last year.
- Display of real-time noise level: the map goes dark and neighbourhoods light up for every hour in order to indicate the best current noise level to worse.
- Display of public interest in the environment: text a message with the number of each area to Living Light Map hotline in order to receive real-data and trigger the corresponding neighbourhood to blink: the more blinking, the more collective interest.

Future applications may include using more types of simulation, digital technologies and opening up new discussion about the trade-offs between design goals and the possibilities between the tangible experience and intangible information.

Invisible Room Zu (族)

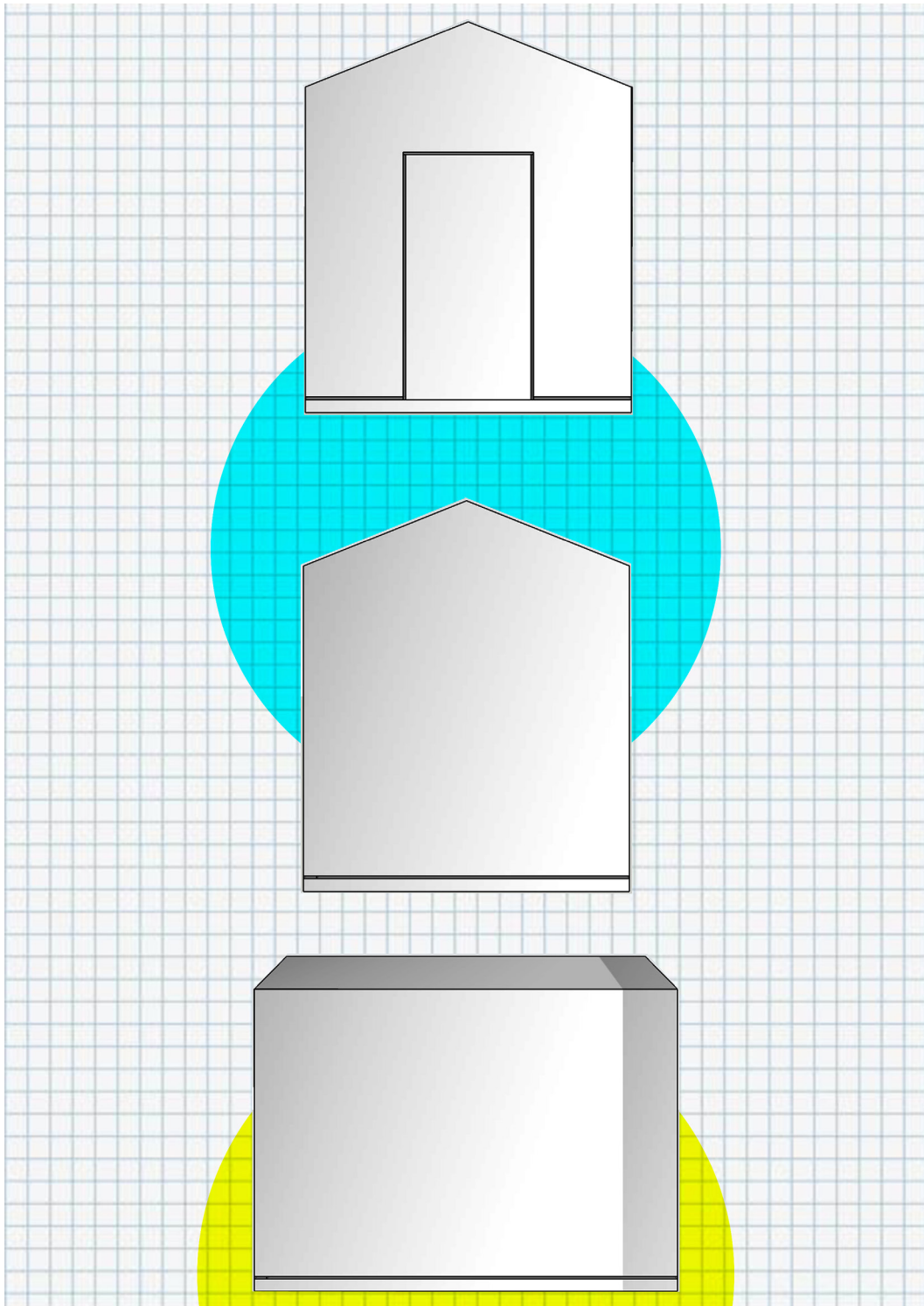
Following the deeper tour inside of the Ancient Town, the second theme of Invisible Room is Zu (族) which located in the center of the Old Town of Lijiang, Sifang Square (Square Street) (figure 6.25). It represents the largest number of ethnic minority group in Lijiang---Naxi, with the population more than 0.24 million. Actually speaking, there are more than 22 ethnic minorities except Han as the previous introduction. Lijiang becomes one of the most famous tourist attractions addition to the unique local customs and practices as well.

Figure 6.25 The location of Invisible Room Zu (族)



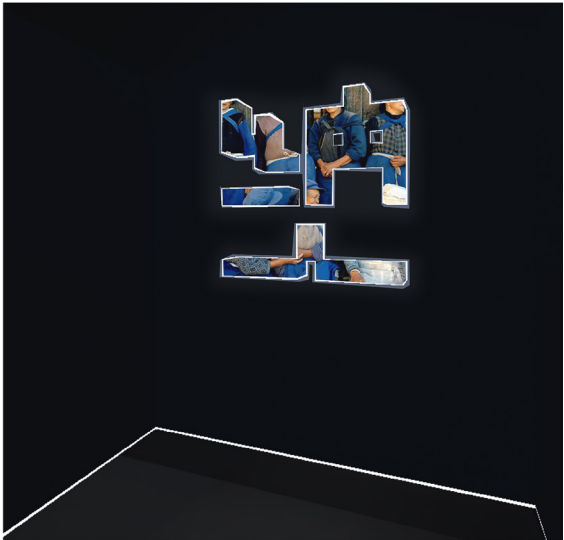
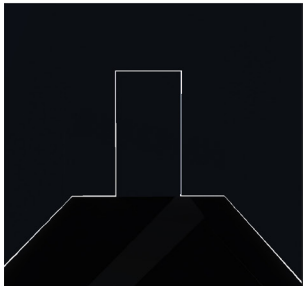
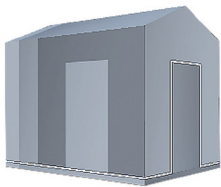
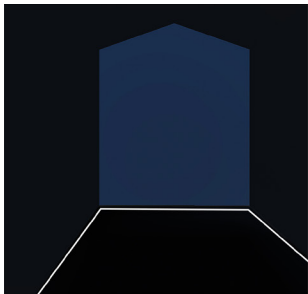
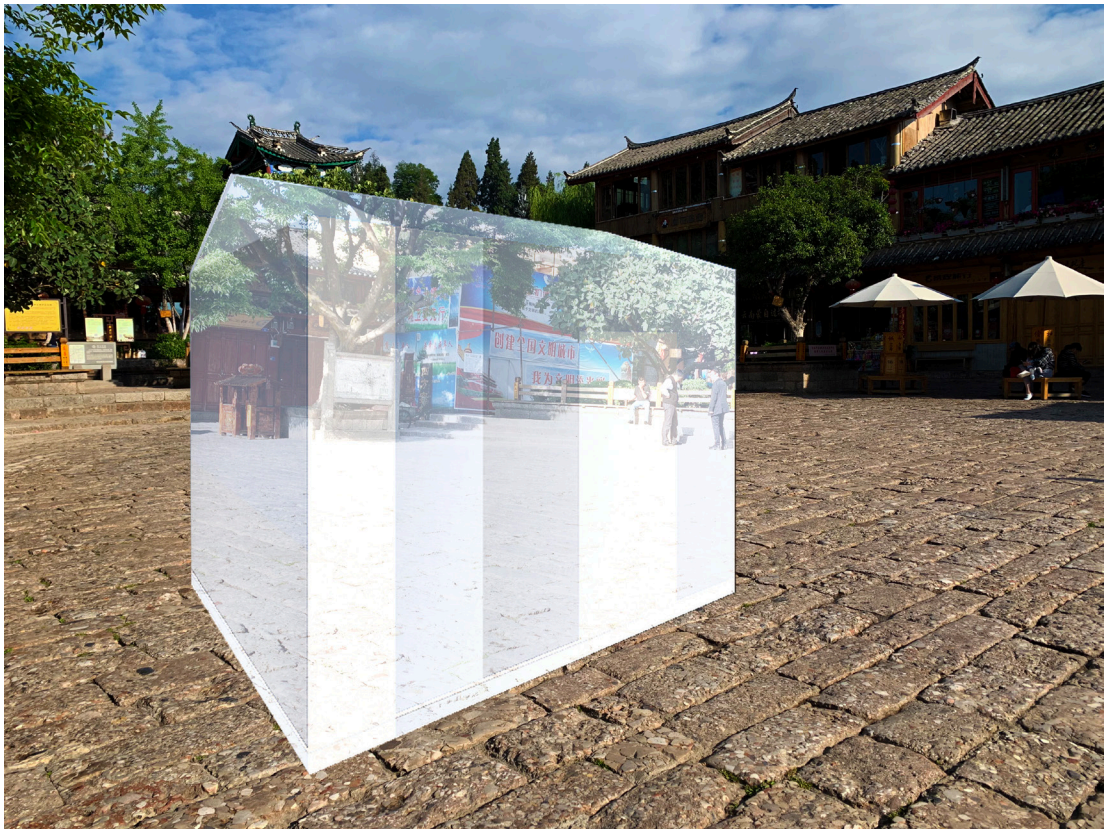
The size of Invisible Room is 3.5 meters length by 2.5 meters width with the height of 3 meters, which is second largest among those three (figure 6.26).

Figure 6.26 The daft of Invisible Room Zu (族)



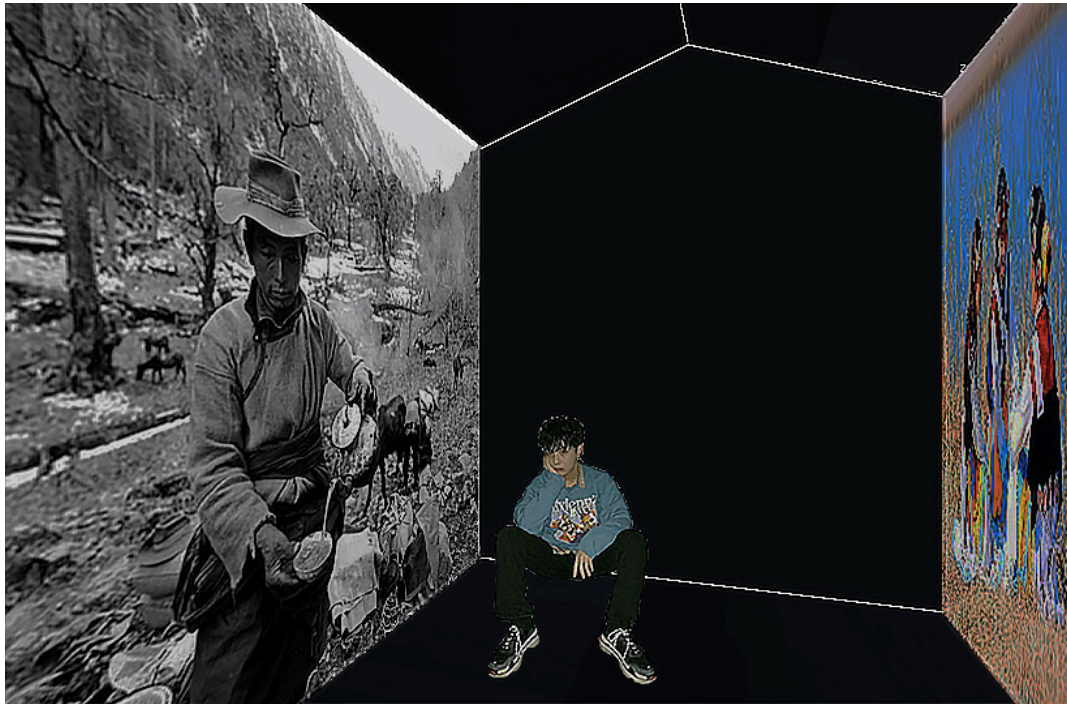
As for the interior installation, we design a Chinese character lightbox with the image of Naxi ethnic on the wall that faces the exit, which extending the theme of text and image. Maybe the significance of the word is totally opposite with the image, which leading visitors to rethink the authentic situation of those ethnic minority groups nowadays with the development of tourism or even the society (figure 6.27).

Figure 6.27 Invisible Room Zu (族)



As for each side of the wall (the left and the right), we consider to show two short films which describe the different definitions and point views of two generations on their national identity (figure 6.28).

Figure 6.28 The short films about national identity of Naxis between two generations



Among most of multi-national countries all over the world, the problems of ethnic identity and cultural assimilation confront most minorities as a result of the impact brought by social development and historical changes. Chinese localized that minorities are exit in a great number. Those Chinese assimilated minorities have shown a deficiency and weakening in areas of economic life, geography, customs and religions which compared with the traditional minorities. Now only three ways are available when identifying Chinese assimilated minorities--- census registry, blood strain and preferential policy, which the last one is highlighted among them. However, there are still drawbacks in it, the decrease of ethnic diversification, the loss of elegant ethnical customs and the disappear of the ethnic cultures for instance. Those two short films propose the attention of these drawback from aspects of geography, language and customs, which provide ideological basis for cultural preservation and development of ethnic minority groups (figure 6.28).

Figure 6.28 Naxi ethnic minority group



Invisible Room Zong (宗)

After visiting the Sifang Square, the tour route was divided into two main streams--Qiyi Street and Wuyi Street. Among them, Wuyi Street introduced the crowd to the southeast hinterland of the Ancient Town, which the Food Square is the only one transmission path. As a result, the third Invisible Room Zong (宗) is located there without any doubt (figure 6.29). it represents the final station of the journey to the cultural exploration as well as the highest position of spiritual level---religion. Dongba religion is generally believed in the Naxis in southwestern China as the introduction in previous chapter (figure 6.30).

Figure 6.29 The location of Invisible Room Zong (宗)

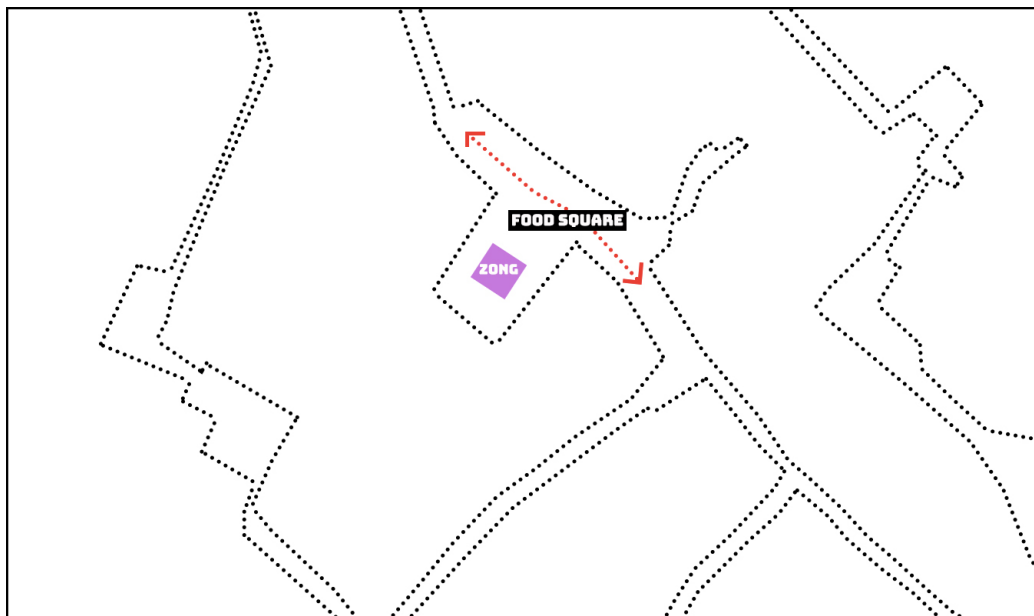
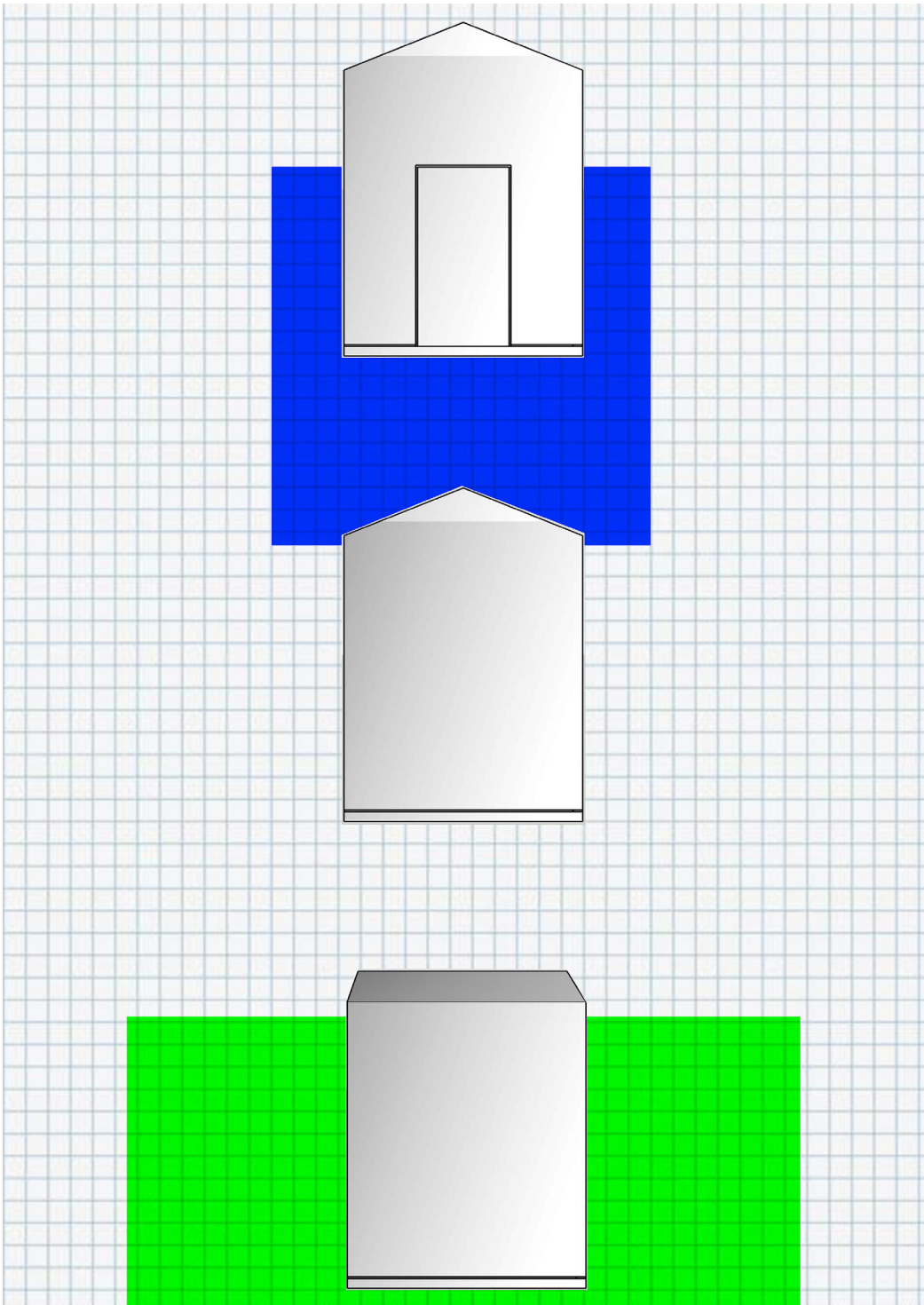
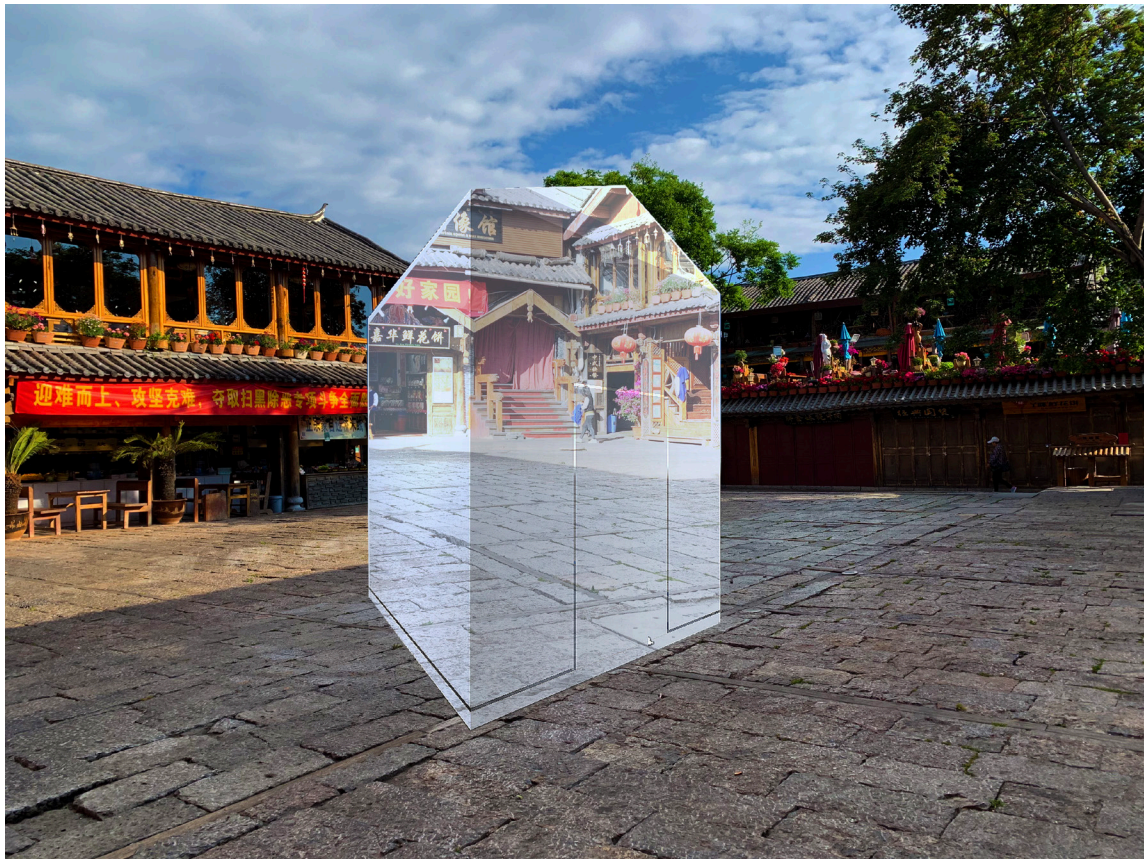


Figure 6.30 The daft of Invisible Room Zong (宗)



The size of Invisible Room Zong (宗) is 2.5 meters length by 2.5 meters width with the height of 3 meters. It is the smallest among them but equally important (figure 6.31).

Figure 6.31 Invisible Room Zong (宗)



As for the interior, we focus on the two of the most out-standing features of Dongba religion---Dongba characters (figure 6.32) and Dongba music (figure 6.33). we prepare to paint the Dongba murals on the walls and the ground with fluorescent or ultraviolet paint combining with synthetic Dongba ancient music to create a mysterious dreamy surreal experience.

Figure 6.32 The fluorescent or ultraviolet paint of Dongba murals



Figure 6.33 The Dongba ancient music



One of the important values of Dongba religion is to demonstrate the complexity and richness of Chinese national religion. It is a national religion with multiple religious factors. Its origin and flow can be divided into native Naxi native religion and foreign religion. Among those two levels of factors, the local belief system (native religion) is the "source" and the various foreign religious factors are "flow."

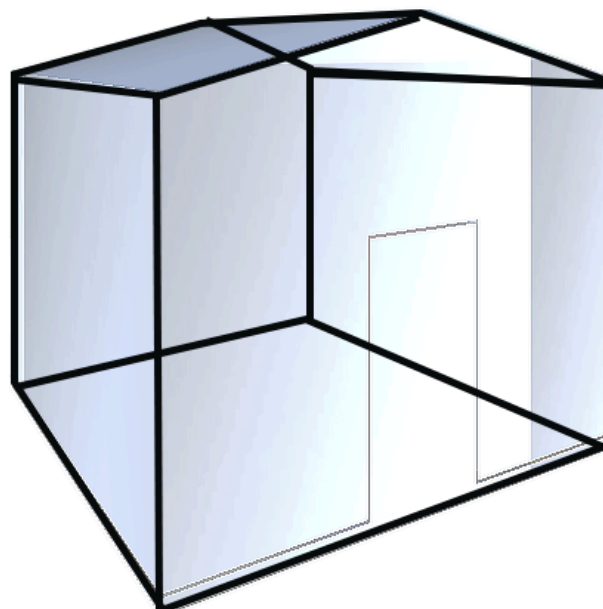
The Dongba religion of the Naxi people does have the nature of folk religion. It has no fixed religious organizations, temples and temples. It has a systematic ritual structure and is closely related to daily life, including production and life and etiquette. But the difference is that it has a Dongba scripture (do bbaq jeq) or a Dongba book (do bbaq tei'ee) which is matched with each ritual. Each ritual must be strictly in accordance with the ritual procedure " 笃母 " (Ddu muq) uses a specific series of Dongba scriptures, and the "primitive religion" of most ethnic minorities in China is a classic written without words. Dongba religion that there is no special religious organization, but there is a special priest Dongba, and these Dongba priests are different from other institutionalized religious clerics. In addition to being invited to hold ceremonies, they usually work at home as a farmer as well.

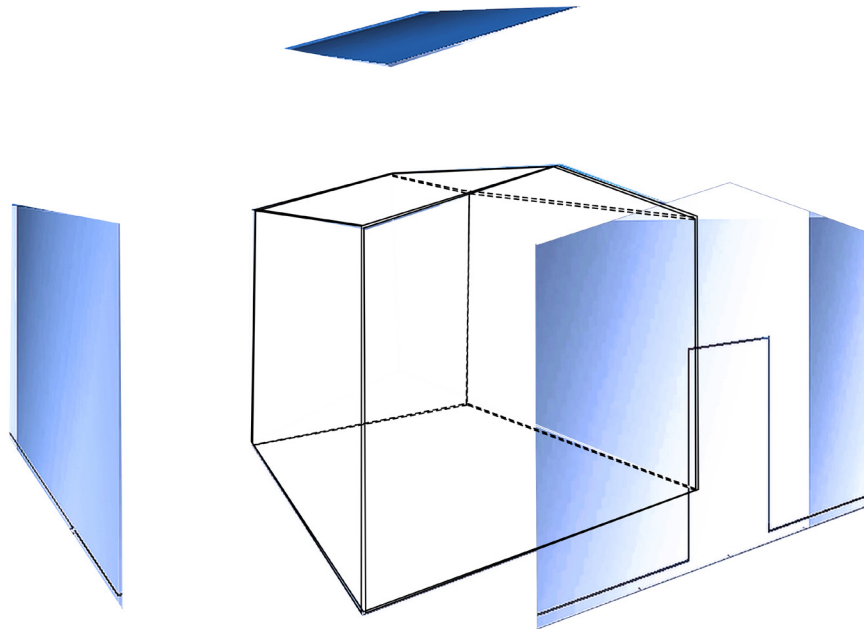
Through connecting a dialogue between modern civilization and ancient mythology to find a delicate balance between the past and the future, which highlighting that the development of science and technology will not only lead to the demise of traditional culture, but also lead human civilization into a new era---science leads to God. it not just belongs to the past, but also lives in the present and leads to the future.

The structure of Invisible Room

Since the volume of the house is not particularly large, in order to make the house light enough to be easily assembled and dismantled, we consider mainly using traditional solid wood as the main load-bearing component after borrowing from the traditional local house structure, using synthetic wood as the ground, roof and wall. As for the surface, we decide to use PC mirror panels as the external decorative bonding materials. On the other hand, it saves construction costs as well (figure 6.34).

Figure 6.34 The structure of Invisible Room





Based on the local price of materials in Lijiang, the price of synthetic wood is about 50 CNY/m² (about 7EUR/m²) and the price of PC mirror panel is about 90 CNY/m² (about 12 EUR/m²). Therefore, the average costs of one Invisible Room is around 6000~7000 EUR in total (figure 6.35/36).

Figure 6.35 The synthetic wood



Figure 6.36 The PC mirror panel



Physical Models of Invisible Rooms

As for the prototype of Invisible Room, we used the basswood sheet and transparent acrylic sheet with the help of laser cutting to make the base model at a ratio of 1:50. As for the material on the surface, we used aluminum foil to replace the PC mirror panel (figure 6.37/38)

Figure 6.37 The materials of physical model

A: The basswood sheet



B: The transparent acrylic sheet

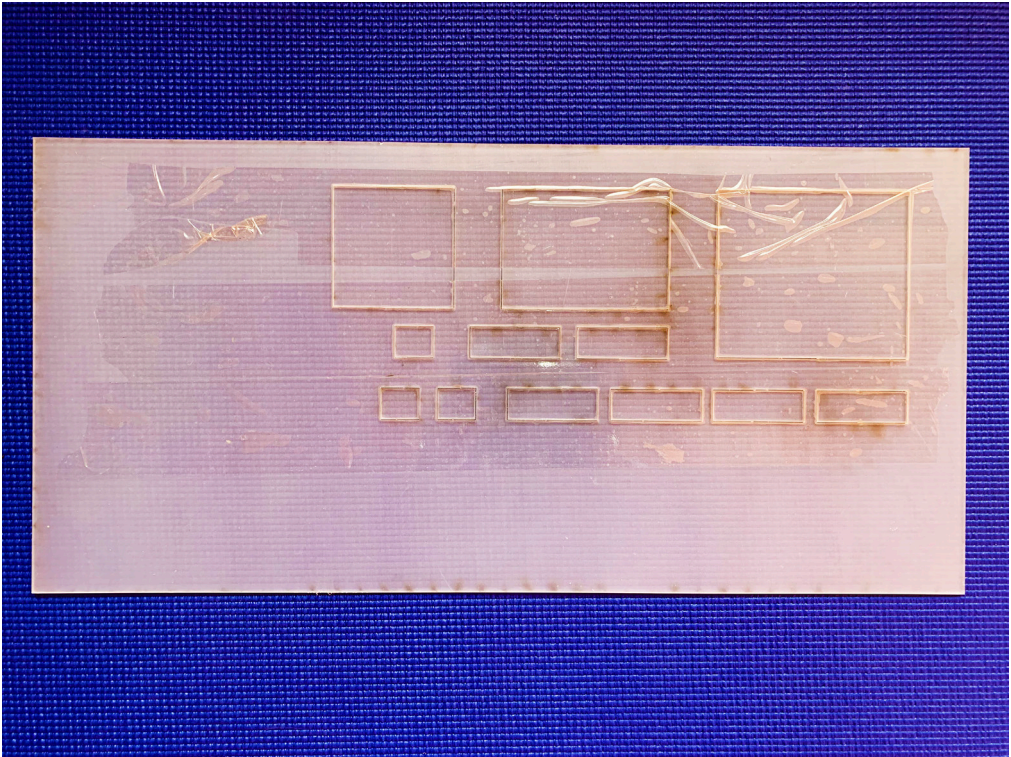


Figure 6.38 The prototype of Invisible Room

A: Invisible Room Yuan (源)



B: Invisible Room Zu (族)



C: Invisible Room Zong (宗)



Maybe the design can hardly fix any of this status quo physically from the fundament. The most important concept is to provoke people to introspect themselves. With the development of technology, there are more possibilities to lead the preservation of heritage sites to a brighter future. The magic of design can be a bridge between the gap of past and present and even to the dreamland.

CHAPTER 7--- DISCUSSION AND SUGGESTIONS FOR THE SUSTAINABILITY OF TOURISM IN LIJIANG

First of all, this Chapter discusses the possibilities of innovation for cultural heritage sites, then summarizes all indicators in the two dimensions and converts their analyzed outcomes to the five-point scale of sustainability which using the principles to measure individual indicators by the five-point scale listed in the previous Methodology Chapter (Table 3.6). In addition, suggestions are offered to improve the problematic or deficiency actions towards tourism. In turn, it could lead tourism development toward a brighter and more sustainable future.

The variety of options which discussed in the previous chapter show the multiple ways in which digital technologies and interactive objectives have supported the analysis, recording and innovation of cultural heritage. This has assisted ultimately in its interpretation, preservation and encouraging appreciation and understanding of the past by diverse audiences. Despite of the concern about the use of digital technologies might undermine the need of conservation for “real thing”, people still widely accepted recommended practice and related guidelines from professional bodies and heritage organizations advocate the use of digital technologies to improve access and the understanding of collections and sites. However, it is not as a long - term preservation tool which could replace the need for protecting the physical original ever. The NINCH lead to good practice in the digital representation. The management of cultural heritage materials clearly states that “digitization of analog materials would not be a substitute for investment in their preservation and conservation, but it can assist the conservation of the origin” (HATII and NINCH 1998: 33). With the dramatic increase of “born - digital” heritage materials which originated in digital form, there are concerns about the preservation of digital heritage assets and appropriate management so that they do not become inaccessible and obsolete as well (UBC 2013 and UNESCO). Social media are increasingly and widely used by heritage organizations in their plans to involve communities much more than before in the stewardship of the built and natural environment apart from digitization, such as the National Trust in the UK and English Heritage.

Our encounter with cultural heritage as well as the way we are experiencing it is changing as a result of the expansion of digital media. The examination of digital heritage indicates that the journey has not always been uneventful and smooth. The digital endeavors of the last few decades have brought important issues to the fore and also showed how our contemporary context and biases shape our understanding of the past as the same with other heritage applications. Some of these issues have to do not only with the honesty and rigor with which heritage data are analyzed and recorded, but also with what is omitted and what is recorded in our interpretative digital models. Other issues relate to the experience of visitor and how to engage and relate the physical experience of heritage with the virtual world.

However, one of the most important overarching issues of this discussion is that digital technology is not simply an innocent tool in the effort to understand and record the past, for it inevitably shapes and affects drastically how we experience cultural heritage. Not only as the various contemporary digital technologies or interactive objectives that applied in this field that have matured, but also as the socioeconomic developments of the last few years that have changed the way we view others, ourselves and the past. There has been a shift away from the admiration of the realistic representation of the models and the technical wizardry of these tools and reconstructions they produce toward a more critical use of innovative heritage applications by stakeholders and communities, which encouraging the open reinterpretation and re-examination of heritage.

Currently We are focusing less on the realistic representation of the cultural and natural environment in the digital domain, in turn, are becoming more critical about issues regarding the value, ownership, identity of digital heritage and authenticity. The availability of innovative cultural content which is open for reuse and reinterpretation should push us rethink these issues in new ways. There is greater emphasis on the use of digital media by local communities that interpreting their own practices and places in an increasingly globalized world, within a context of greater mobility. Actually, the spread of the internet has brought to the fore the need to cater for international audiences and the potential for global connectivity stronger than ever before, while being adaptable and serving to personal preferences or local as well. This has also implications for national, regional and wider digital heritage strategies:

Policies for digital access to heritage sites need to address questions about how online heritage can be at the same time owned (nurtured cared for and interpreted) by [national] communities and be accessible for a global audience in order to help benefit environmental stewardship, international tourism and cultural diplomacy as well. (FA and CT 2010: 14)

In order for heritage custodians and organizations to maintain the contact with diverse audiences and also ensure that heritage sites remain relevant in a rapidly changing world, it is necessary to openly examine the questions that innovative heritage brings up and also invite user communities to participate in this continuous process of mutual exchange and reinterpretation.

Suggestions for a more sustainable tourism development in Lijiang

The above observations suggest particular public policy implications for tourism management and planning. Lijiang has already reached the crucial stage of sustainable tourism development. The evaluation of the sustainability of the tourism industry can be valuable in providing general guidelines, which can be refined through error and trial over time.

Suggestions for the Social Dimension

With the tourism development in Lijiang, more and more immigrants poured into Lijiang to engage in gift shops or other small businesses of serving tourists as mentioned before; quite a proportion of indigenous residents there moved out of the ancient town and rented their houses to immigrants at the same time, which resulting in a decreasing racial proportion of the Naxi ethnic population in the area. In addition, the tremendous tourist population in Lijiang leads to horrible land use intensity threats and speedy land use change, both of which diminish the sustainable development of Lijiang. All of the facts demonstrate the need for local authorities to carefully formulate more detailed policies that oriented towards population control and development control (both tourist population and residential population) through management and planning with the aim of achieving optimum capacity without saturation as well as keeping the proportion of the indigenous population intact. It is important to stress that such policies should define the maximum population density and land use intensity of Lijiang, and also the optimum or maximum capacity of tourist population within the context of the social environment as already indicated. Urgent application of such measures is required, which based on population density, land use intensity, warning of over-commercialization from UNESCO in 2008 and declining tourist satisfaction

Suggestions for the Cultural Dimension

The conservation of the Naxi culture is crucial if sustainable tourism is to be developed. There can be no doubt that the local culture is the greatest asset of Lijiang, of which the community wishes to develop whatever type of tourism. The government has made progress in protecting culture by providing training to tour guides and young generation, which launching schools and agencies to teach the Naxi culture and making a summarization and collection of the Dongba Culture. However, there is no culture preservation related training that provided to tourists or store operators by agencies as yet. Stores in Lijiang are another crucial carrier of local culture and the recognition of store operators to protect and respect the Naxi culture have a positive meaning to sustainable tourism and culture conservation in addition to the indigenous population. They should be responsible for protecting the local culture as long as store operators benefit from tourism. What's more, if government institutions or other agencies could provide tourists with information on the environmental protection and Naxi culture during their tourism trips, not only would the Naxi culture that has been well known, but also the information would be advantageous to tweak the interests and passion of tourist in the Naxi culture combining with the contemporary technologies and artificial interactions. It is necessary to inform tourists that the Naxi culture belongs to every tourist of Lijiang even everyone in the world. Therefore, it is the responsibility for every tourist to make their contribution towards protecting the Naxi culture in order to support a more sustainable future. In other words, it is more likely for tourists to watch their own behavior and enjoy a better tourism experience in Lijiang.



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